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ABSTRACT

The City Politicians' Manual is part of a set of 21 manuals (AA 001 009-001 029) used in APEX (Air Pollution Exercise), a computerized college and professional level "real world" game simulation of a community with urban and rural problems, industrial activities, and air pollution difficulties. The first two sections, which are the same in each of the student manuals (volumes 1 to 19), contain general information about the APEX interaction simulation and a glossary of reference terms. The remaining sections contain the following: city politicians' role description; annotated city politicians' worksheet; a sample city politicians' worksheet; an annotated printout for cycle one; and a map of the 29 APEX analysis areas. The manual is identical to the County Politicians' Manual, except for the annotated printout for cycle one. The game simulation procedure and required computer facilities are further described in resumes for AA 001 009 and 001 010. (PR)

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Environmental
Protection
Agency

APEX

Air Pollution Exercise

Simulation
Exercises

VOLUME 4

CITY POLITICIAN'S MANUAL

AA001012

APEX•VOLUME 4
CITY POLITICIAN'S MANUAL

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Introduction to - APEX

APEX is one of, if not the most complex gaming-simulations of an urban area in use today. Although it was designed to supplement standard teaching methods, APEX is far more than an educational tool. It is a communication channel of a new kind -- capable of providing both the language and the forum for information transfer between persons and groups with different educational and cultural backgrounds as well as different prespectives on urban life.

APEX is composed of two essential components (1) a computerized system made up of a series of well-integrated simulation models (2) linked to a "gamed" environment encompassing a series of interactive roles. The computerized system predicts the changes that occur in several sectors of urban life in response to the decisions made by participants in the "gamed" environment, decisions made by persons outside the "gamed" environment (other actors whose behavior is simulated in the computer), and external pressures on the city (also simulated in the computer).

The county of APEX is run year by year by a set of elite decision makers performing both the mundane and extraordinary functions of their office in the "gamed" environment. Each cycle or year is condensed in time to a three to eight hour session during which the decision makers formulate their yearly policy. The decisions that emerge out of the "competitive-cooperative" environment of the gaming-simulation are used as priming inputs to the computer simulation. The change in the status of the urban area is calculated by the computer and returned to the decision makers as the primary input to the next cycle of action. Included in the change picture generated by the computer are selected social indicators measuring the magnitudes of change in assorted key areas and a newspaper serving as the focal point of local public opinion.

The key decision makers acting in the gamed environment include politicians and planners from a central city and a county, an air pollution control officer from the county, and land developers and industrialists from the private sector. The politicians are responsible for the administration of their respective jurisdictions and for the formulation and implementation of various programs to upgrade the social status of their constituents. The planners serve as aides to the politicians and represent the major long range coordinating force in the community. The air pollution control officer is charged with the task of cleaning and monitoring the air mass above APEX county. The land developers and industrialists have the responsibility of running their particular business concerns within the confines of the county. It is expected that each decision maker will find it to his advantage to coordinate and/or compete with other players in his efforts to promote his strategies. The APEX General Interaction Diagram included here (see page) indicates possible linkages among players and between players and the simulation.

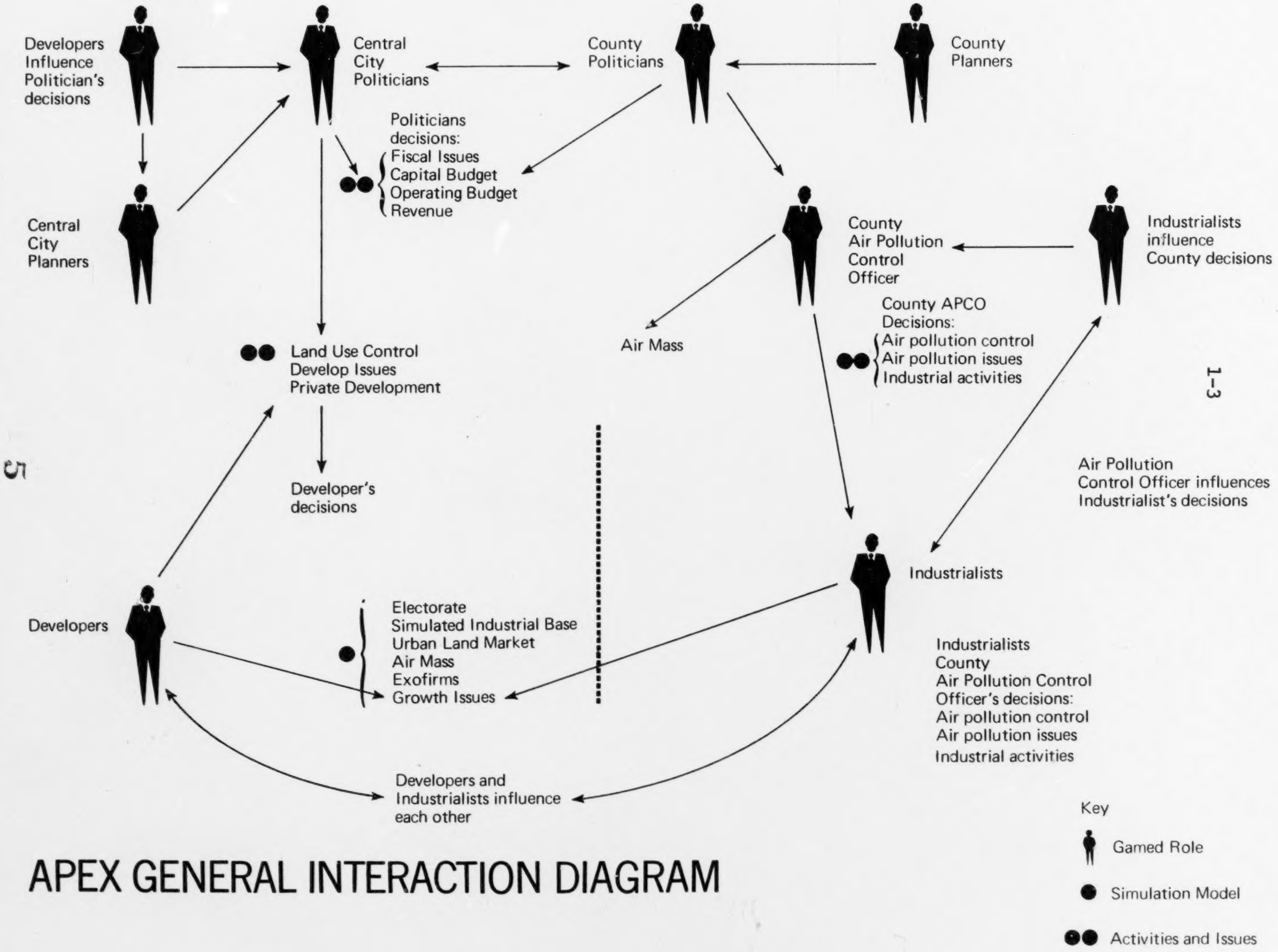
In general, people have great difficulty understanding the dynamics of a complex system through traditional means. Gaming-simulation offers participants the opportunity to study, work with, and discuss the structure of such a system and to experiment with intervention strategies designed to change that structure. When used as a teaching device, the strength of a gaming-simulation such as APEX lies in the opportunity afforded participants for involvemnt in the system. When compared with the passive observation of the system offered by traditional methods, this approach has had great success.

In theory, complex gaming-simulation of the APEX variety is more than a training device or communications facilitator. If the models were more sophisticated the data base more accurate and more complete, a complex gaming-simulation would be a policy testing device for use by practicing urban politicians, planners, APCO's and administrators. Conditional predictions (predictions based on the particular policies and/or decisions submitted to the model) of the ramifications of various decisions can be generated through the use of a complex gaming-simulation -- predictions that may forewarn the model user of unforeseen reactions to policy at several levels of the urban hierarchy ranging from that of the highest level.

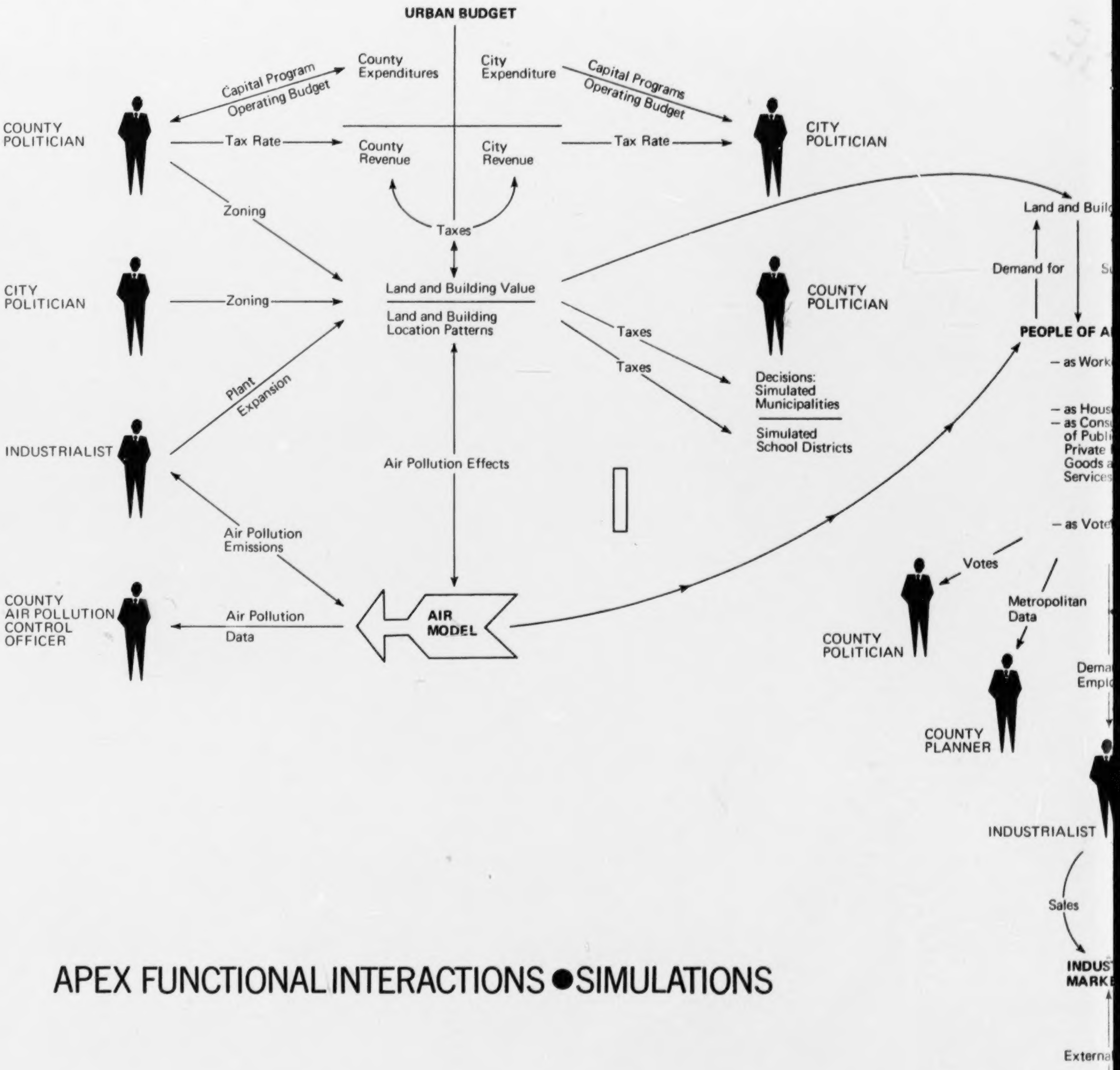
The gamed environment is similar to that found in a typical midwestern industrialized town. (In fact, the prototype city is Lansing, Michigan). It has a population approaching 220,000 including several of minority groups sharing racial or ethnic ties. There is a relatively dense central city in the heart of the county, an adjacent suburb and two outlying townships. Most of the industry is located in the central city (as are the minority groups). Major firms include a large auto plant and the state government offices. The suburb houses a major university. The townships are largely agricultural, although urbanizing settlements are dotting the landscapes. There is a major river running through the city serving as the primary drainage system for the county. The climate of APEX is temperate, with summer temperatures averaging about 70 degrees and winter temperatures averaging near 25 degrees. Prevailing winds are westerly, swinging to the southwest in summer and northwest in winter.

For the purposes of the gaming exercise, APEX county is divided into 29 analysis areas (see the attached map, Section 9). Population, employment and land use will be allocated to the areas and are categorized by types established especially for APEX. These types are described in the glossary included in this manual (Section 2) a glossary designed to aid participants in learning the terminology of urban and environmental management as well as that of the gaming exercise.

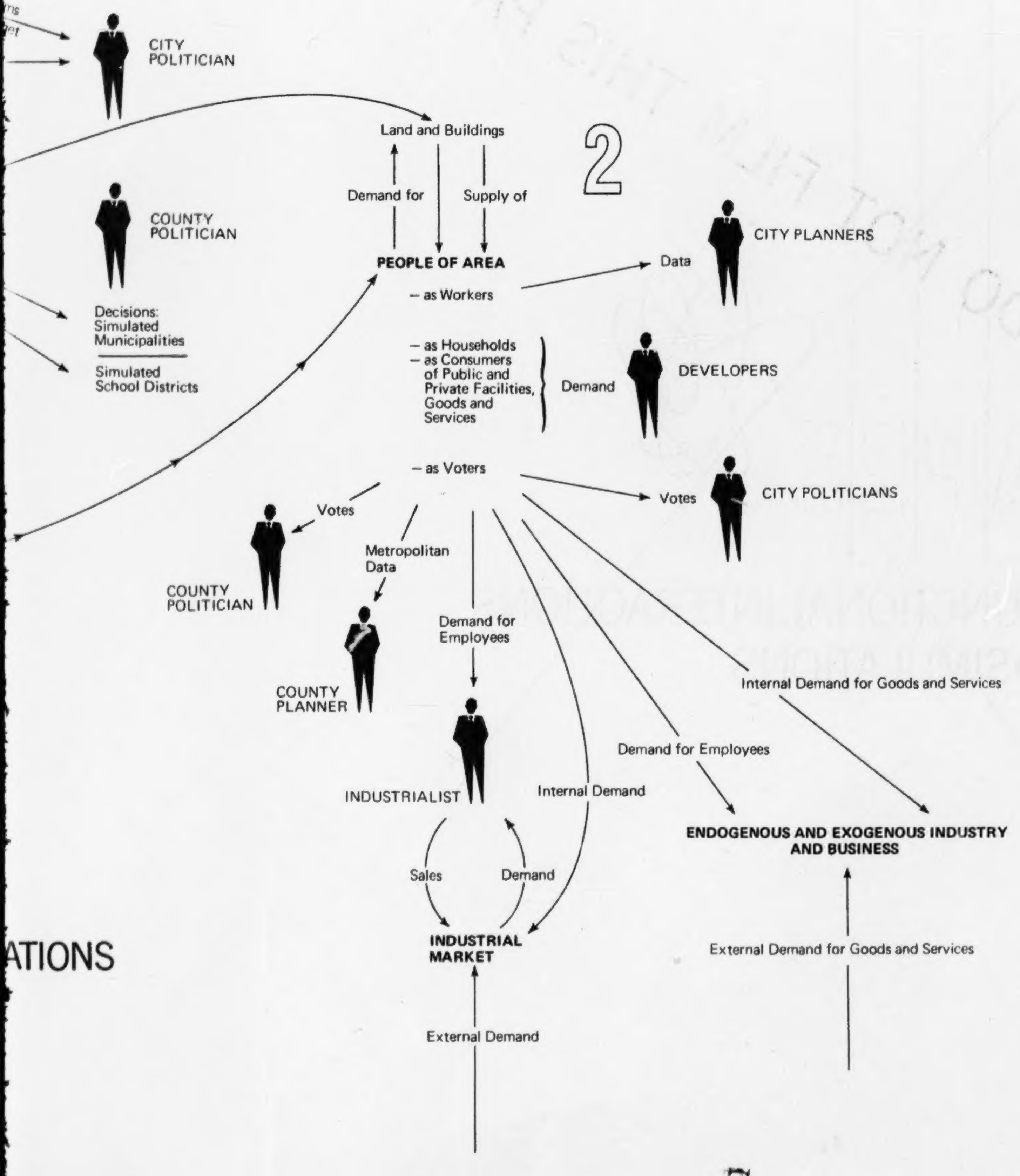
FOR ADDITIONAL INFORMATION:
Address inquiries to Chief, Institute for Air Pollution Training
Environmental Protection Agency
Research Triangle Park, North Carolina 27711



APEX GENERAL INTERACTION DIAGRAM



APEX FUNCTIONAL INTERACTIONS ●SIMULATIONS


CITY POLITICIAN
Land and Buildings
2
Demand for
Supply of
COUNTY POLITICIAN
PEOPLE OF AREA
– as Workers
Data
CITY PLANNERS
Decisions: Simulated Municipalities
Simulated School Districts
– as Households
– as Consumers of Public and Private Facilities, Goods and Services
Demand
DEVELOPERS
– as Voters
Votes
CITY POLITICIANS
Votes
COUNTY POLITICIAN
Metropolitan Data
COUNTY PLANNER
Demand for Employees
Internal Demand for Goods and Services
INDUSTRIALIST
Internal Demand
Demand for Employees
ENDOGENOUS AND EXOGENOUS INDUSTRY AND BUSINESS
Sales
Demand
INDUSTRIAL MARKET
External Demand for Goods and Services
External Demand

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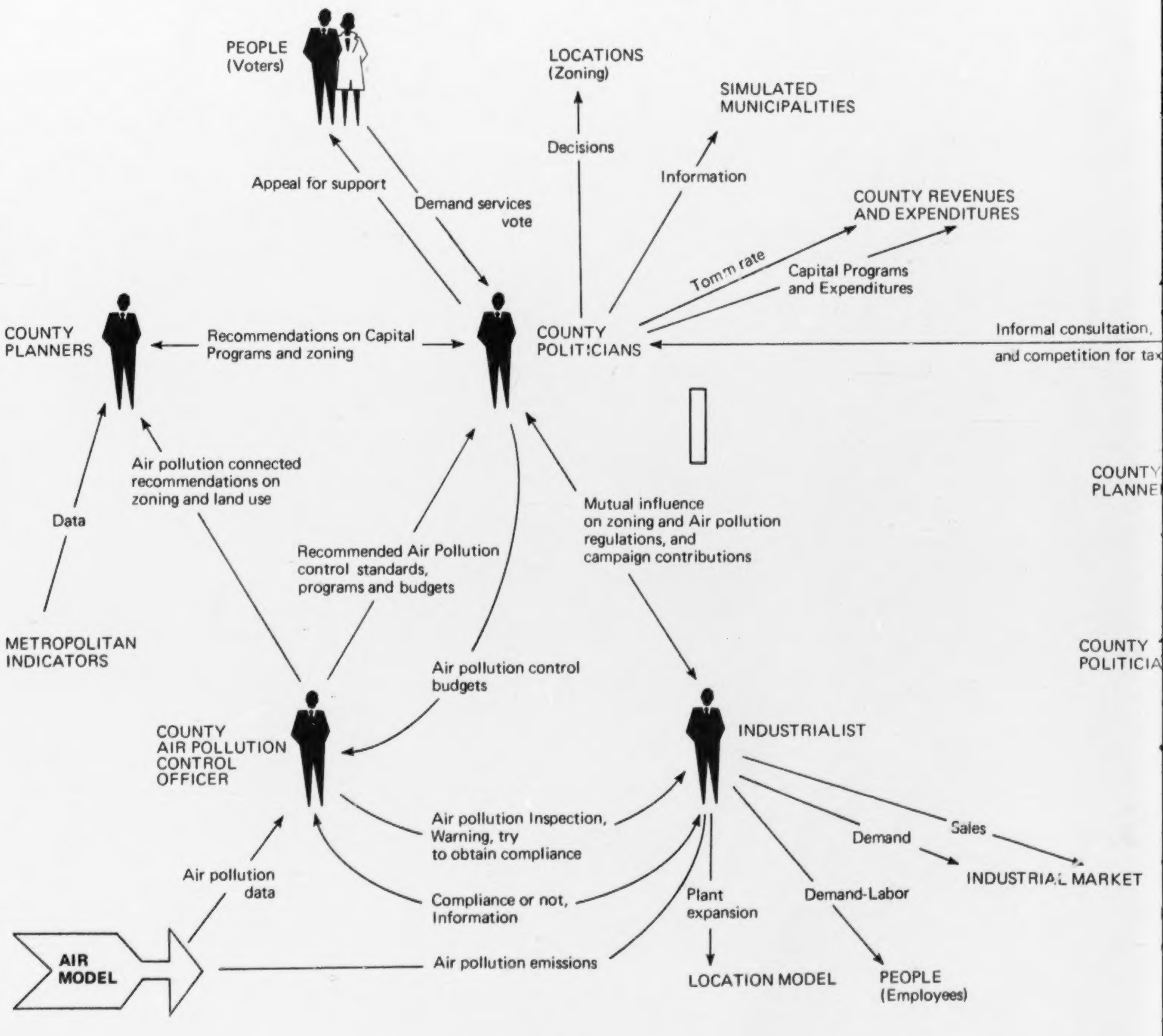
PEOPLE
(Voters)
LOCATIONS
(Zoning)
SIMULATED
MUNICIPALITIES
Decisions
Information
Appeal for support
Demand services
vote
COUNTY REVENUES
AND EXPENDITURES
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and Expenditures
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Programs and zoning
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POLITICIANS
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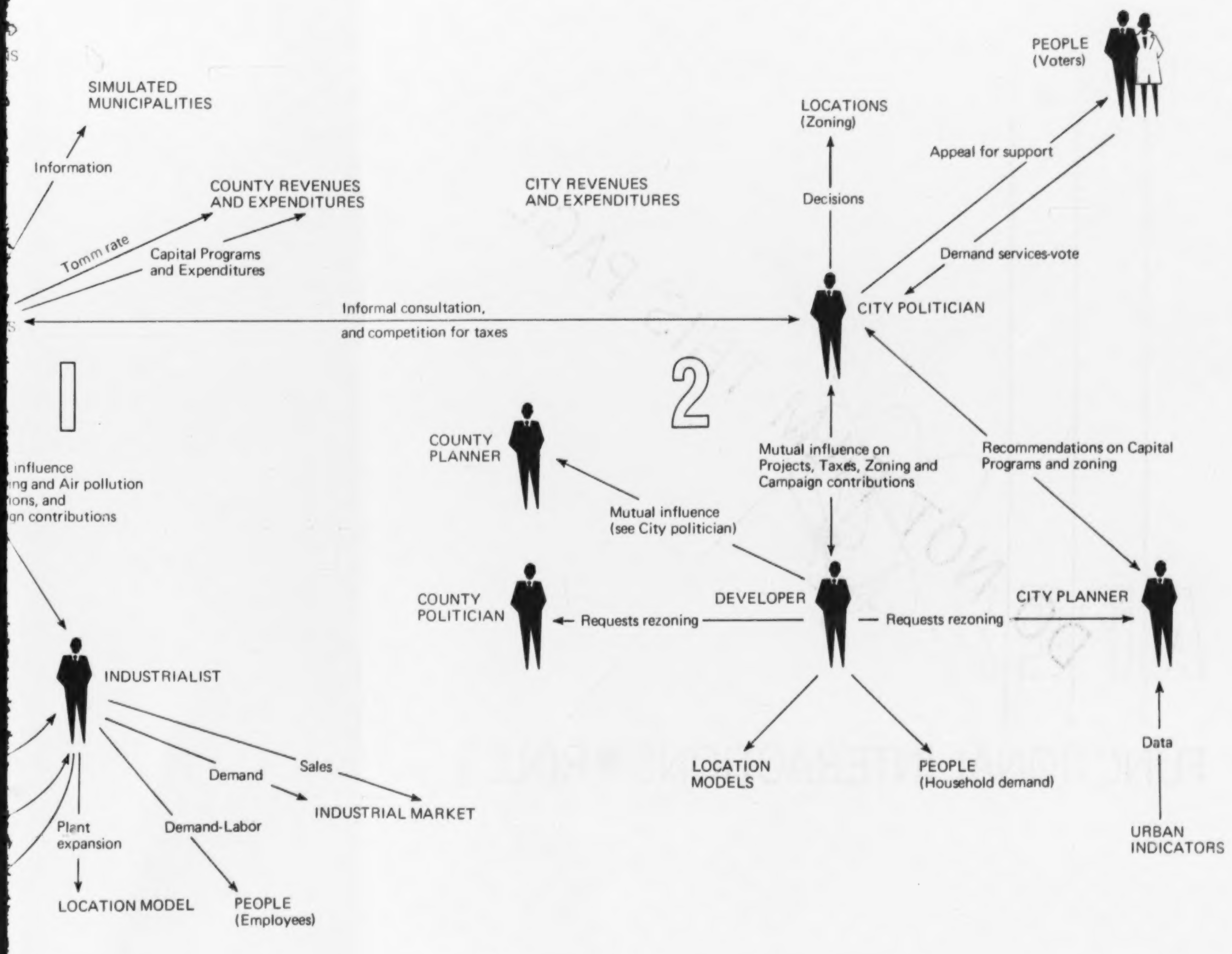
and competition for ta
Air pollution connected
recommendations on
zoning and land use
Data
COUNTY
PLANNE
Mutual influence
on zoning and Air pollution
regulations, and
campaign contributions
Recommended Air Pollution
control standards,
programs and budgets
METROPOLITAN
INDICATORS
COUNTY
POLITICIA
Air pollution control
budgets
COUNTY
AIR POLLUTION
CONTROL
OFFICER
INDUSTRIALIST
Air pollution Inspection,
Warning, try
to obtain compliance
Sales
Demand
INDUSTRIAL MARKET
Air pollution
data
Compliance or not,
Information
Plant
expansion
Demand-Labor
AIR
MODEL
Air pollution emissions
LOCATION MODEL
PEOPLE
(Employees)

APEX F



APEX FUNCTIONAL INTERACTIONS • ROLES

GLOSSARY AND REFERENCE TERMS

ABATEMENT

Abatement is the reduction of pollutant emissions from a source or sources.

AIR POLLUTION

Air pollution is the presence in the outdoor air of substances which, when present in sufficient quantity or over a period of time, can cause an undesirable effect upon man, property, or the environment.

AIR POLLUTION REGULATIONS

Air pollution regulations are legal constraints on pollutant emissions, production processes, or control systems. State regulations and County regulations are enforceable by legal sanctions, while recommendations are not.

AIR QUALITY

Air quality refers to the pollution concentration characteristics of the atmosphere or ambient air in a given area. It is usually stated in terms of the levels of concentration of specific pollutants, in parts of pollutant per million parts of air. (See CONCENTRATION.)

Air Quality Goals are expressions of desirable maximum pollutant concentrations to be achieved through a pollution control program.

Air Quality Standards are quantitatively-specified maximum levels of pollutant concentrations or dosages, as more precise statements of air quality goals.

ALERT STAGES

Alert Stages refer to critical levels of concentration or dosage signalling potential disastrous pollution effects and requiring emergency abatement and control measures.

ANALYSIS AREA (A.A.)

Analysis areas are used as the primary areal reference units for the data and issues throughout the game. The County is divided into a number of analysis areas, each of which is the approximate size of several census tracts. The analysis areas included in the five jurisdictions are as follows:

Jurisdiction 1 -- Central City: Ward 1 = AA 1 through AA 4
Ward 2 = AA 5 through AA 8
Ward 3 = AA 9 through AA 13

Jurisdiction 2 -- Suburb: AA 17 through AA 19

Jurisdiction 3 -- Township 1: AA 23 through AA 28

Jurisdiction 4 -- Township 2: AA's 14-16, 20-22, 29

Jurisdiction 5 -- County: AA's 1-29

(See APEX Analysis Area map)

ANNUAL WAGE

This is the annual cost to the Industrialist of one worker and is an average of the various rates of pay applicable to the different types of workers in the firm. The applicable average wage rate for each firm is reported in the Industrialist's output each cycle under cost factors.

ASSESSED VALUE

Assessed value is the value assigned to real estate property for purposes of assessing taxes owed to each of the Jurisdictions, County and school districts. Governments are required by law to maintain an assessed value of 50% of market value for property in their jurisdiction, although this requirement is often not met. (E.g. if a residential property is valued on the market at $20,000, its assessed value is $10,000.) (See STATE EQUALIZED VALUE.)

BOARD OF DIRECTORS

Each Industrialist acts as a Plant Manager and is responsible to the Board of Directors of his plant for his decisions and actions. The Board has the ultimate decision-making power in Plant affairs and may approve, amend or reject the Manager's fiscal policy proposal. The Board also sets the amount of dividends to be paid to the stockholders.

BONDING

Bonding is the process of incurring public debt to finance some capital improvement project. It is a device used to extend the incidence of costs over a long period of time, rather than have costs met out of current revenues while the project is under construction. Politicians may issue two kinds of bonds, general obligation bonds and revenue bonds. These differ in three respects: (1) the need for voter concurrence, (2) how they are paid off, and (3) the kinds of projects for which they are appropriate. Before Politicians may float general obligation bonds to finance projects, voters must approve this action in a referendum. There is a State-imposed limit on the indebtedness that a jurisdiction may incur through general obligation bonds. The amount of additional

bonded indebtedness that can be sought is indicated in the Politician's output as "$ Limit on Next Bond Sought".
(See DEBT RETIREMENT for the process of financing general obligation bonds.)
Revenue bonds are not submitted to a referendum and are appropriate only for particular projects. (Projects for which they may be used are noted in the Project List.) They are paid off through fees collected for the service provided by the facility, rather than by taxes.

CAPITAL PLANT INDEX (C.P.I.)

The capital plant index is a ratio of the present dollar value of public capital facilities (sewers, water lines, streets, parks and miscellaneous public holdings) to population equivalents. This number reflects the load imposed on facilities by residents, employees and clients, and thus is considered as an indication of the relative level of adequacy of these facilities. Present dollar value is calculated each cycle on the basis of depreciated value of existing facilities plus new facilities. (Facilities depreciate at about 5% of original value per year.)
(See POPULATION EQUIVALENT.)

CASH CARRYOVER

This is the cash reserve which an Industrialist or Developer carries over to the next cycle after making all his expenditures, including those for capital plant. It represents as-yet uncommited funds, which the player is free to use in the next cycle.

CASH TRANSFER

A cash transfer is used for loans or gifts of cash between players when the reason for the exchange is unspecified. Revenues made, or expenditures incurred, through an exchange of cash between either the Government, Industrialist, or Developer, are recorded in the budget section of the output. When applicable, cash transfers are also used to cover the cost of television time and newspaper articles.

COMBUSTION

Combustion is the process of burning fuel or wastes.

CONCENTRATION

Concentration is the ratio of pollutants to effluent gases or ambient air, measured in parts per million (ppm) as a volume to volume ratio, or micrograms per cubic meter (UG/cubic meter) as a weight to volume ratio. Data on mean concentration per quarter, concentration on worst day, and number of days above a specified concentration can be obtained by the APCO, through the installation and operation of monitoring stations.

CONTAMINANT See POLLUTANT

CONTROL EFFICIENCY

Control efficiency refers to the ratio of the amount of a pollutant removed from effluent gases by a control device to the total amount of pollutant without control.

CONTROL SYSTEM

Control system refers to equipment and/or procedures intended to reduce the amount of a pollutant, or pollutants, in effluent gases. Each gamed industrial firm has a limited set of control system options for each production or combustion process.

DEBT RETIREMENT (Debt Service)

Debt retirement, or debt service, is a term used to describe the process of paying off long-term general obligation bonds sold by public agencies. Debt retirement is a budget category of the Politician which includes expenditures for both principal and interest on general obligation bonds. Financing of these expenditures may be with either normal millage or debt retirement millage.

DEMOLITION COSTS (Clearance Costs)

A demolition cost of 5% of the assessed value of developed property must be paid when developed land is rezoned.

DENSITY

In residential areas, density is the term used to express the number of dwelling units per acre of land. In APEX a different density is associated with each of the five residential development types, with the lowest density found in land use category R-1 and the highest in category M-2.
The table on the following page expresses housing density in housing units per acre, and in acres per housing unit.

DEPRECIATION ALLOWANCE

Each cycle, the total value of capital facilities, (building and equipment) depreciate. A tax credit of 5% of the capital value facilities is allowed the industrialist to compensate for this depreciation. The amount is deducted before Federal and State income taxes are paid. The industrialist may claim any part of his maximum allowance; any portion of the allowance not taken will accumulate. The maximum depreciation allowance is listed under cost factors in the industrialist's output.

HOUSING DENSITY

AA	R-1		R-2		R-3		M-1		M-2	
	Units per Acre	Acres per Unit	Units per Acre	Acres per Unit	Units per Acre	Acres per Unit	Units per Acre	Acres per Unit	Units per Acre	Acres per Unit
1	1.4	.71	3.5	.29	5.6	.178	11.2	.089	21.0	.047
2	2.4	.41	6.0	.16	9.6	.104	19.2	.052	36.0	.027
3	2.0	.5	5.0	.20	8.0	.125	16.0	.062	30.0	.033
4	2.8	.35	7.0	.14	11.2	.089	22.4	.046	42.0	.023
5	2.1	.47	5.3	.18	8.4	.119	16.8	.059	31.5	.031
6	1.6	.62	4.0	.25	6.4	.156	12.8	.078	24.0	.041
7	2.5	.4	6.3	.15	10.0	.10	20.0	.050	37.5	.026
8	3.0	.33	7.5	.13	12.0	.083	24.0	.041	45.0	.022
9	1.2	.83	3.0	.33	4.8	.208	9.6	.104	18.0	.055
10	2.5	.4	6.3	.158	10.0	.10	20.0	.050	37.5	.026
11	1.0	1.	2.5	.4	4.0	.25	8.0	.125	15.0	.066
12	1.0	1.	2.5	.4	4.0	.25	8.0	.125	15.0	.066
13	1.0	1.	2.5	.4	4.0	.25	8.0	.125	15.0	.066
14	.5	2.	1.3	.76	2.0	.5	4.0	.25	7.5	.013
15	.6	1.66	1.5	.66	2.4	.41	4.3	.208	9.0	.011
16	.8	1.25	2.0	.5	3.2	.31	6.4	.156	12.0	.083
17	1.2	.83	3.0	.33	4.8	.208	9.6	.104	18.0	.055
18	2.3	.43	5.8	.172	9.2	.108	18.4	.054	34.5	.028
19	3.0	.33	7.5	.13	12.0	.083	24.0	.041	45.0	.022
20	.8	1.25	2.0	.5	3.2	.31	6.4	.156	12.0	.083
21	.5	2.	1.3	.76	2.0	.5	4.0	.25	7.5	.013
22	.4	2.5	1.0	1.	1.6	.62	3.2	.31	6.0	.16
23	.7	1.42	1.8	.55	2.8	.35	5.6	.178	10.5	.095
24	.3	3.33	.8	1.25	1.2	.83	2.4	.41	4.5	.022
25	.4	2.5	1.0	1.0	1.6	.62	3.2	.31	6.0	.16
26	.3	3.33	.8	1.25	1.2	.83	2.4	.41	4.5	.022
27	.6	1.66	1.5	.66	2.4	.41	4.8	.208	9.0	.011
28	.3	3.33	.8	1.25	1.2	.83	2.4	.41	4.5	.022
29	.5	2.	1.3	.76	2.0	.5	4.0	.25	7.5	.013

DEVELOPMENT TYPES AND COSTS

A. Residential

In APEX there are various levels of cost and density associated with different qualities and sizes of housing which may be built by Developers. These costs are for structures, exclusive of land and site improvements.

Single Family
Three different development-cost levels are applicable to APEX single-family housing units, ranging from the highest construction cost of $40,000 (designated as R-1) to the lowest cost housing, built at $15,000 per unit (designated as R-3). Any one of these types may be built on land which, when vacant, is zoned R.

Multiple Family
Units of two different cost levels, M-1 and M-2, are available for construction of multi-family housing in APEX. The highest cost per unit, for M-1, is $30,000 and the lowest, for M-2, is $12,000. Either of these types may be constructed on vacant land zoned M.

Residential Development Costs per Unit

R-1	R-2	R-3	M-1	M-2
$40,000	$22,500	$15,000	$30,000	$12,000

B. Commercial

Two types of commercial land use are allowable in APEX. These relate to local neighborhood shopping facilities and to regionally-oriented commercial and service facilities. Both may be built only on zoning category C land. Each is developed on a cost-per-acre basis, as follows:

Commercial Development Costs by Type

CL	CR
$100,000	$125,000

C. Industrial

Endogenous industrial development permitted Developers in APEX is on a per-acre basis, the cost being $100,000 per acre. Zoning category I land may be developed into this land use.

(See ZONING CATEGORY.)

DOSAGE

The specified time duration of an air pollutant's critical concentration level in a particular location, or for a particular person, material, etc., is known as dosage.

EFFLUENT

Effluents are the total gaseous emissions from production and combustion processes and activities, including air pollutants and non-noxious material.

ELITE OPINION POLL (E.O.P.)

The Elite Opinion Poll calls for a vote of all game players on certain major policy issues in the community. These issues appear as headlines in the M.E.T.R.O.-APEX News, which ask for either a deciding or advisory vote. The results of the Poll affect public officials' chances of re-election, as well as the probabilities of passage of general referenda and specific bond issue and special millage requests.

EMISSIONS

Emissions are pollutants in effluent or exhaust gases which are released into the air.

EMISSION FACTORS

Emission factors are estimates which can be used to approximate the rate of emissions of specific pollutants from generalized sources.

EMISSION MEASUREMENT

Air pollution emissions are measured in pounds per hour for particulates, sulfur dioxide (SO_2), carbon monoxide (CO), nitrogen oxides (NO_x), and hydrocarbons (HC); in Ringelmann number for smoke; and in Stinkelmann number for odor. The emissions measured are of specific pollutants from specific sources.

EMISSION RATE

Emission rate refers to the amount of pollutant emitted per unit of time. Maximum allowable emissions will be specified in pounds per hour if they refer to emission rates.

EMISSIONS SOURCE

An emission source is the origin of some specific air pollutants. In the game there are several gamed point sources, about thirty non-gamed point sources, plus motor vehicles and space heating as line and area sources, respectively.

EXOFIRM (EXOGENOUS FIRM)

An Exofirm is an industry or bureaucratic firm that depends primarily upon markets outside the local area for its growth and vitality. These firms are usually classified as Exofirms on the basis of their being net importers of dollars and net exporters of products or services to these outside markets. Jobs created by Exofirm growth spur additional growth of households and jobs oriented to the local market. (Exofirms are also often referred to as basic firms).
In APEX, Exofirms locate in zoning categories I and O.
Periodically, the newspaper will note the opportunity for Developers to invest, in a speculative way, in the entry of new Exofirms into the metropolitan area, with a variable probability of success attached to such investments. Occasionally, these Exofirms require rezoning of land and/or installation of special capital improvements. Requirements for such special public action and requests for private investment will be noted in the newspaper announcement of the firm's interest in locating in the area.

FUEL RATE

The amount of fuel consumed by each industry per unit of time is specified in tons/hours for coal, in barrels (bbl)/hour for oil, in thousand cubic feet (MCF)/hour for natural gas, and in megawatts (MW) for electricity.

FUEL TYPE

The fuel type possibilities include: low-grade coal (Lo-Coal), high-grade coal (Hi-Coal), low-grade oil (Lo-Oil), high-grade oil (Hi-Oil), natural gas, and electricity. The fuel option for each plant is listed in the Industrialist's output. The fuel grade refers inversely to the air pollution potential of the burning fuel, i.e., Lo-Grade has high pollution potential, and Hi-Grade fuels have low pollution potential.

HOUSEHOLD TYPES

The five household types used in APEX are characterizations of families belonging to fairly homogeneous socio-economic groups. These characterizations reflect life style, political involvement and voting habits, general consumption behavior and preference for public goods. There is substantial overlap of income levels for all status groupings; hence income, alone, is a weak indicator for characterizing households.

Household Type 1 -- is upper class and upper-middle class combined. Occupations of the heads of households are: professionals, technical workers, managers, officials, and proprietors. One-half of the family income levels are in excess of \$15,000 and the other half are in the \$10,000-\$15,000 range. Value of housing is in excess of \$20,000, and if they rent, rentals are over \$150 per month. This is the group which is most concentrated in residential location. Education of the head of the household is at least college graduate, often with post-graduate study. Pressure group membership for this household type is found in the Chamber of Commerce and Good Government League.

Household Type II -- is the typical middle-class household in which the head's occupation is clerical, sales, or kindred types. Income of the family is primarily in the $7,000-$10,000 range. Education of the head of the household is some college or at least high school graduation. Housing value is primarily in the $15,000-$25,000 range, and gross rentals would usually be from $100 to $149 per month, though they may be somewhat lower. Pressure group affiliations for this type are with the Good Government League on the one hand, and with the ultra-conservatives on the other.

Household Type III -- the most numerous and widely-distributed of the five types is characterized by a mixed membership of very low income white collar workers, skilled craftsmen, and foremen, though the latter two predominate. In the outlying areas, farmers fall into this category. Family income is primarily in the $5,000-$9,000 range. The head of household's education is typically high school graduation. Housing value is usually in the $12,000-$20,000 range and rentals are from $80-$125 per month. Members of this group are apt to belong to the unions and/or the ultra-conservative pressure group.

Household Type IV -- is composed of semi-skilled workers, industry operatives and non-household service workers, such as waiters, barbers and parking-lot attendants. Family income is in the lower portion of the $4,000-$7,000 range. Housing values range from $10,000 to $14,000 with gross rentals being $70 to $90 per month. Education of the head of the household is usually 9 to 11 years. Pressure group membership for this household type is found in the unions and among the civil rights groups.

Household Type V -- is the lowest stratum of society, and heads of households are laborers or household service workers. The vast majority of the area's unemployed are of this type and roughly half of all members are elderly and retired. Family income is less than $5,000 annually and the value of housing is less than $10,000, with rentals primarily $50-$75 per month. Heads of households have usually not been educated beyond the eighth grade. Membership in pressure groups is found in the unions and civil rights groups.

Political involvement of the five household types declines from type I (the highest) to type V, the latter being generally apathetic. Likewise, concern with government operation and provision of public services is highest in type I households and declines steadily through type V families.
The five household types will tend to demand housing of the five residential development types according to the following percentages:

Household type I -- 50% will choose R-1; 30%, R-2, and 20%, M-1.
Household type II -- 20% will choose housing in each of the five development types.
Household type III -- 10% prefer R-1; 30% prefer R-2; 20% choose R-3; 25% take M-1, and 15%, M-2.
Household type IV -- 20% will choose R-2; 40%, R-3; 10%, M-1, and 30%, M-2.
Household type V -- 40% will be in R-3; 60% in M-2.

IMPROVEMENT COSTS

Improvement costs are fees to prepare raw land for development, including subdivision costs, sewer and water connections, drainage and engineering. Developers are required to pay improvement costs on all land on which they build structures. For residential property, improvement costs are on a per unit basis as follows:

R-1	R-2	R-3	M-1	M-2
$1,000	$800	$700	$600	$400

For commercial and local industrial land uses, improvement costs are on a per acre basis; for each the fee is $5,000 per acre.

These fees are automatically applied to all land on which the Developer builds.

INTEREST RATE

The cost of borrowing money will vary for the Industrialists and Developers according to both their credit rating and the length of the loan, i.e., how many years will be taken to repay it. Applicable interest rates are as follows:

	Credit Rating		
Years to Repay	A-1	A-2	A-3
1-2	4%	6%	8%
3-5	6%	8%	12%
6-10	8%	12%	16%
11-20	12%	16%	20%

The cost of borrowing money for governmental agencies -- the interest rate on bonds -- will vary according to the credit rating of the jurisdiction, and will differ between general obligation and revenue bonds. Since revenue bonds are not backed by governmental taxing power they are riskier and therefore carry higher interest rates than general obligation bonds. As a jurisdiction's credit rating falls from A-1 to A-3, the interest rate on general obligation bonds will increase from 4.5% to 6%.

ISSUE

Issue is used to refer to a problem situation presented to players in the APEX News. Following each issue are two to four alternatives from which one must be selected. (See ELITE OPINION POLL.)

JURISDICTION

Jurisdiction refers to one of the political units in APEX. Abbreviations used in the game are:

CC - Central City (Jurisdiction 1)
S - Suburb (Jurisdiction 2)
UT 1 - Township 1 (Jurisdiction 3 or Western Township)
UT 2 - Township 2 (Jurisdiction 4 or Eastern Township)
Co - County (Jurisdiction 5)

(See ANALYSIS AREA.)

LAND USE

Land use refers to the types of structures built upon particular pieces of land.

(See DEVELOPMENT TYPE and ZONING CATEGORY.)

MAXIMUM PRODUCTION CAPACITY

This is the maximum number of units which can be produced by a gamed industry in a cycle, given the plant and equipment in existence during that cycle. Maximum capacity may be increased by making capital expenditures for building and equipment. New productive capacity becomes available only in the cycle following that in which money is budgeted for plant expansion.

MILLAGE

Millage is the tax rate, in mills, which is applied to State equalized property value to generate property tax revenue. One mill is equal to a $1 charge on each $1000 of value, or one tenth of one percent of the State equalized value. There are three types of millage:

A. Normal Operating Millage is determined by local Politicians and is applied to standard operating costs of government by State and local law -- the local limit can never be higher than the limit set by the State.

B. Special Millage, which is not subject to State and local limits, can be used for financing special programs. It must be voted on in a referendum.

C. Debt Retirement Millage is not subject to the state and local limits but it can be used for retiring capital project bonds. This millage requires a favorable vote in a referendum.

Total millage is the sum of operating millage, any special millages and the debt retirement millages which may be in effect during the year.

MONITORING STATION

A monitoring station is a piece of equipment placed at a given location for measurement of air quality. An air quality monitoring station of one of five types may be installed and operated in any analysis area. The pollutants measured by each type of monitoring station are:

Type 1: Particulates
Type 2: Particulates and SO_2
Type 3: Particulates, SO_2, and CO
Type 4: Particulates, SO_2, CO, and NO_x
Type 5: Particulates, SO_2, CO, NO_x, and Hydrocarbons

PARTICULATES

Particulates are solid particle air pollutants, which may be suspended in the air or may settle out, depending on the size of the particles, wind speed, and other factors.

PLANT INSPECTION

A plant inspection is an "on-site" examination of production and pollution control equipment, processes and procedures. Plant Inspections ordered by the APCO will provide him with information on the production processes; production capacity; fuel and process rates; control systems; smoke code (Ringelmann number); and odor code (Stinkelmann number) for each process of a specific gamed or non-gamed emission source.

PLANT MANAGER

The player in the role of Industrialist is acting as a Plant Manager. (See BOARD OF DIRECTORS.)

POPULATION EQUIVALENT

The population equivalent is a means of converting (a) residents, and (b) employees and clients of industries and commercial facilties into a standard measure of the demand placed on such public capital facilities as sewers, streets, and water supply. The population equivalent of an area (analysis area or jurisdiction) is computed as follows:

$$\text{P.E.} = [\text{Total households}] + [.8 \times \text{all employees of commerce and industry}]$$

For use of population equivalents in APEX, see CAPITAL PLANT INDEX.

PRESSURE GROUP

There are five pressure groups represented in APEX which take stands on public policy issues and can influence voter behavior. The more extreme the position assumed by the pressure groups, either pro or con, (as indicated by a scale of +4 to -4), the greater will be the voter turnout for referenda and elections. Each pressure group derives its constituency from members of two or more household types. (See HOUSEHOLD TYPES)

1. Civil Rights Groups -- find their leadership in the elite liberal and in ghetto activists. The majority of their followers come from lower social strata. These groups represent both Negroes and Mexican-Americans. The orientation of the groups is primarily toward what they consider bread-and-butter issues, such as fair employment, and toward actions which focus on the neighborhoods in which they live. Thus, the Civil Rights groups tend to be active in specific cases, but their influence is moderate.

2. Good Government League -- is overwhelmingly middle-class, composed primarily of professional people, a heavy percentage of them women. This group is interested in a wide range of issues, in which they exert moderate influence, and is oriented toward governmental efficiency and toward community growth and image.

3. Chamber of Commerce -- draws many members from the business community and some from professional groups such as law, engineering, and medicine. This group exerts the highest degree of power of all pressure groups and is oriented primarily toward community image and "boosterism". However, when an issue tends to split the business community, this group is likely to take no position.

4. Unions -- are more conservative locally than nationally and exhibit some divergency between craft unions and industrial unions, the former being more conservative. The unions exert moderate influence on a range of issues somewhat less broad than those of interest to the Good Government League. The conservatism of the unions is especially apparent in the opposition of some of its constituency to public spending for social welfare.

5. Ultra-Conservatives -- draw membership from people who are isolated from most community affairs. Although members have average incomes, the education level of most is lower than the community average. These groups become involved in public issues only sporadically, taking extreme and noisy positions when they feel personally affected by proposed public actions.

PROCESS RATE

Process rate refers to the amount of materials processed by an Industrialist per unit time. The measure is specified in tons, pounds, barrels, per minute, hour, etc.

PRODUCTION LEVEL

This is probably the key item determined by an Industrialist each cycle. It is the number of units of a product his plant will produce in that cycle. The Industrialist is free to set his production at any level he chooses, as long as the figure he sets does not exceed his maximum production capacity.

PRODUCTION PROCESS

A production process is a definable part of the overall production system a given firm. Each gamed industrial firm may have up to eight production processes, while each non-gamed industrial firm is assumed to have only one process.

QUASI-PUBLIC LAND

This is land owned by tax-exempt organizations such as churches and fraternal organizations. Such land includes church buildings and schools, cemeteries and such miscellaneous buildings as Elks lodges.

REFERENDUM

A referendum is a vote of the (simulated) population of a jurisdiction on some issue presented to the people by the Politician. Most usually referenda are called to approve (or reject) a general obligation bond issue or a request for special millage, although they may be called to approve some legislative matter, such as open housing.

REZONING APPLICATION FEE

The rezoning application fee is a charge of $100, which is assessed for each rezoning request submitted by a Developer or Industrialist. It is included in that player's financial statement for the next cycle.

RINGELMANN NUMBER

The Ringelmann Number is a code for measuring the blackness of smoke plumes and is equivalent to the opacity. Ringelmann Numbers and opacities are used for specifying allowable smoke emissions (Ringelmann for black and opacity for other colors). #0 = zero opacity, #1 = 20%, #2 = 40%, #3 = 60%, #4 = 80%, #5 = 100%. In APEX, all smoke readings are reported as Ringelmann Numbers.

STATE EQUALIZED VALUE

State equalization is a process designed to even out differences in assessment practices among political jurisdictions. The state equalization factor applied to each jurisdiction's assessed value will thus be different. The state equalized value for a jurisdiction, reached by applying the factor to local assessed value, is the base on which millage is levied to generate property tax revenues.

STINKELMANN NUMBER

The Stinkelmann Number is a code (developed in APEX) for measuring odor emissions, and for specifying maximum allowable odor emissions. Numbers range from 0-5, covering least to worst odor levels, respectively.

TAX RATE

See MILLAGE.

UNIT COSTS

The costs to the Industrialist of operating his plant are calculated, for each production component, except labor, on the basis of the amount and cost of each component required to produce one unit of the product. These unit costs apply to fuel, administrative overhead, inventory, and raw materials.

Fuel Cost applies to the fuel required to produce each Industrialist's product and will be different for each fuel type.

General Administrative Costs include all overhead expenditures, other than salaries, involved in production.

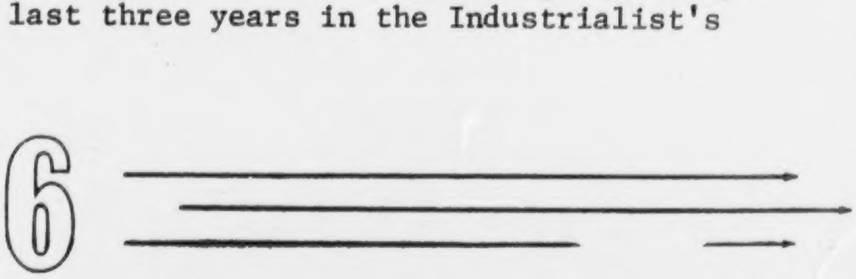
Inventory Carrying Costs must be paid to store product inventory from one cycle to the next. This cost excludes property taxes on inventory.

Materials Costs include all raw materials required to produce the product, except fuel.

The unit costs for each of these components which are applicable for a particular Industrialist for the next year are included in that player's output.

UNIT SALES PRICE

This is the price, which an Industrialist sets each cycle, at which he will sell a unit of his product. Each Industrialist has complete control over price, although the number of units he actually sells will be dependent on the relationship of his price to supply-demand conditions in the general market, and to the current average industry-wide price (reported for the last three years in the Industrialist's output).



ZONING CATEGORY

Zoning categories apply only to vacant land for APEX. Each of the six zoning categories may be developed into one or more types of land use:

ZONING CATEGORY

Zoning categories apply only to vacant land for APEX. Each of the six zoning categories may be developed into one or more types of land use:

FROM	TO
Zoning Category	Developed Land Use Type(s)
(1) R - Single-family residential	(1) R-1 (low density, high cost)
	(2) R-2 (medium density, medium cost)
	(3) R-3 (high density, low cost)
(2) M - Multiple-family residential	(4) M-1 (low density, low cost)
	(5) M-2 (medium density, low cost)
(3) C - Commercial	(6) CL (Commercial-Local)
	(7) CR (Commercial-Regional)
(4) I - Industrial	(8) I (endogenous industry)
	(9) I (exogenous industry)
(5) O - Bureaucratic	(10) O (exogenous bureaucratic)
(6) A - Agricultural	(11) A (active farming)

Section 3-1

POLITICIAN'S ROLE DESCRIPTION

Introduction. The role of the Politician in APEX is highly representative of the functions of the City Council and County Board of Supervisors in the real world. Accordingly, the individual Politician is most concerned with the "general welfare" of his particular constituency and, therefore, with providing the policy-making leadership necessary to promote responsive and effective local government. This singular concern arises from the written categorical imperative of all elected officials, acting to insure their own re-election.

The County Politicians, acting in their capacity as the Air Pollution Control Board, are ultimately responsible for air pollution control within APEX county, including the Central City. The head APCO, then, is in turn directly responsible to the County Board of Supervisors for the activities of the Air Pollution Control District, as specified in the State enabling legislation. (See State Health and Safety Code in the Legal Reference Manual.)

Under this system, the County Politicians are charged with the legislative and financial matters of the District, including: (a) approving, disapproving or amending local air pollution control rules and regulations, (b) approving, disapproving or amending the annual budget requests of the District, and (c) reviewing proposals for obtaining federal air pollution control grants.

In general, when prescribing the maximum allowable emission levels for various pollutants through the passage of rules and regulations, the Politicians may seek to balance the interests of two major groups. On the one hand, these are the Industrialists, who influence the social and financial climate of the community, most notably the levels of unemployment and the property tax base. On the other hand, there are the constituents whose voting patterns may be influenced by the adverse effects of air pollution on their health and property.

While the Central City Politician(s) is not direclty responsible for air pollution control, his constituents are nevertheless affected by atmospheric pollution levels. For this reason, the Central City Politician(s) may seek to influence the policy decisions of the Air Pollution Control Board and/or the APCO either through obtaining formal membership on the Board or through influencing its members.

At the beginning of each cycle, the Politicians, both City and County, receive a computer printout. This printout provides the players with two sets of information: (a) a record of decisions made in the previous cycle, and (b) financial and other information which may guide the player in making current decisions. Since much of the Politicians' activity concerns the formulation of an annual budget, his printout consists largely of financial information.

For the purposes of accounting and in order to provide the Politicians with greater flexibility, the annual budget is divided into two major categories: the Operating Budget and the Capital Budget.

1. The Operating Budget concerns general governmental and administrative expenses and basic community services such as police and fire protection, parks and recreation maintenance, library, etc. Expenditures under this budgetary do not involve the outlay of funds for capital improvements.

2. The Capital Budget is exclusively concerned with the financing of capital improvement projects such as highways, parks, sewers, etc.

The capital improvements portion of the budget is concerned with satisfying the physical needs of the community. These needs are normally generated in one of two ways: community growth in a newly developing area, or community growth in a currently developed area and requiring the renovation, expansion or replacement of existing facilities. In any case, the Politicians will be signalled as to the need to budget new capital improvements of a particular type by a decline in the Capital plant index* in a particular area (as noted by the Planners) and/or by news items and issues appearing in the newspaper.

Another important set of circumstances which might prompt the Politicians to budget capital improvements involves attempts to attract new Exofirms to the community. Politicians may seek to locate such firms in a particular area in order to decrease the unemployment rate, add to the tax base, etc. A listing of the Exofirms desiring to enter the community as well as their choice of location and the needed capital improvements may be found on the business page of the newspaper.

With respect to the capital budget in particular, the Politicians will have to make policy decisions with far-reaching consequences. Difficulties arise from the fact that there are a number of different constituent groups vying with one another for the allocation of always-limited public resources. The most common of the conflicts is that between residents of inner-city (where public facilities are either deteriorating or inadequate and are in need of extensive repair or replacement) and the residents of the suburban or fringe areas (who are usually allied with real estate interests in their demands for new facilities and additional services). Another important conflict which may arise is that which exists between short-run political pressures and long-term public interest. Before making a final decision on the capital budget, the Politician may want to weigh the possible consequences of alternative courses of action; to this end, he may wish to consult with the Planner who has considerably more information and expertise about the community.

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*The Capital plant index is a ratio of the present dollar value of public facilities to population equivalent, a figure used to reflect demand of both residents and employees in a given area (see Glossary, Section 2).

The City and County Politicians, with the aid of Planners (City, County or Regional) could begin to develop a comprehensive program planning and program budgeting methodology. In doing so, they must develop a broader and more integrated view both to community problems and of their role as public managers. Attention should be given both to the actual as well as to the projected needs of the community, and programs should be designed so as to make optimal use of community resources. These programs may span five or ten years, but should include yearly objectives to eventually meet stated goals.

In encouraging this approach, an attempt is made to prevent the role player from being locked into a narrow and restrictive point of view, which can result from developing programs on a "brush fire" or year-to-year basis. The emphasis here is placed on the proactive rather than the reactive approach to handling public problems.

The ideas suggested here are to:

(1) develop goals and objectives;
(2) develop programs to meet present and future needs;
(3) develop short term (yearly) as well as long (5-10 years) range budgets;
(4) calculate present expenditures and estimate future sources of revenue;
(5) develop implementation plans and schedules; and
(6) execute plans.

Such a systems approach cannot be completely outlined here, for that is the job of the Planners and Politicians; however, the following are important components of local governments and should, therefore, be given consideration in a program planning and program budgeting system.

I. Essential city/county services (fire, police, streets, water, sewers, recreation, etc.);

II. Administrative responsibilities (planning, judicial, personnel, legislative, financial);

III. Hospital care (new hospitals, clinics, location, financial aid, etc);

IV. Welfare (new approaches, methods for service and financing);

V. Transportation systems;

VI. Housing (new areas of growth, use of developers, housing for the aged and the poor, financial aid, etc);

VII. Taxes (new business/industry -- where, what kind, new taxing alternatives, incentives, growth?);

VIII. Land use policies (growth, open space, housing--what kind, where, etc);

IX. Environmental quality management and control (air pollution, water, solid waste, esthetics, etc).

The above is only a sample of various kinds of systems concepts that can be developed about local government responsibilities, planning, and finance. The Politician is encouraged to be as creative as possible and to look beyond game constraints. The examples in this section are only ideas and not exact instructions on how to proceed. Each Politician has his own concepts and ideas about how local government should run, and they should be recognized and used.

Of equal importance to decisions about public expenditures are the decisions which the Politician must make each cycle with regard to the methods to be used to finance these expenditures. The major source of revenue available to the City and County is the property tax. Here, too, the importance of the growth of the area is evident, for as the jurisdiction grows, in population and economy, the property tax base will automatically grow.

The Politician must decide how many mills are to be levied. One mill is equal to a $1 charge per $1000 of assessed equalized property value. Limits on the amount of millage which the Politician may impose are set by the State and by local ordinance, with the local limit never allowed to exceed the State limit. In addition to the millage allowed by law, the Politician may ask for a special millage, which must be submitted in a referendum to the voters of the community. When such a millage is sought by the Politician, he must make a public announcement of his request to other players in his jurisdiction and must obtain their signatures in a special Opinion Poll. Any special millage approved by the voters, which remains in effect for a specified number of years, is not included under the normal millage limits. People who live in the Central City are levied both a City and County property tax. These millage rates are independent of each other and are controlled by the Politician of each area. School taxes are collected by the school districts themselves and will not appear on the Politicians' printouts. This school tax is also levied on the assessed equalized value of the property.

To finance capital improvements, the Politicians may transfer funds from the General (operating) Fund to the Capital Fund or they may wish to ask for a General Obligation bond issue, which, like a special millage, must be passed by the public referendum, after public announcement and an Opinion Poll. A millage rate to cover the annual bond repayment costs may be included in the bond issue vote. This special debt retirement millage goes into a separate account and may be used for no other purpose than to pay off incurred bond indebtedness. Some capital improvements may be financed by revenue bonds, where the fees collected for the use of the facilities are used to pay off the bond. Projects for which such financing is allowable are noted in the Project List. Revenue bonds are not submitted to the voters for approval.

A final outside source of funds for public capital improvements is, not unnaturally, the State and Federal government, represented by the

Game Operator. If the Politician can present a good case to the Operator for "Federal" or "State" funding of a project (e.g. public housing) the Operator may give the County or City part of the necessary funds. How much of the cost of a project will be covered in this way will vary from case to case and will depend on agreement between the Politician and Operator.

County Roads, a major component of the County capital budget, are financed largely out of money received from State and Federal sources. A minimum of 20% of these Road Commission Funds must be expended each year on new construction of roads and streets, the remainder going into the Road Maintenance item of the operating budget.

Thus, three of the major activities of the Politician which should be carried out in each cycle of APEX are:

1. decisions about the level at which ordinary government services are to be budgeted and capital improvements undertaken;

2. a determination of methods of raising the necessary revenue; and

3. a determination of methods of retiring the public debt.

In addition to these activities, the Politician will be required to take a stand on issues which arise in the community during the year and which will be brought to his attention in the newspaper. Some of these issues will have implications for operating or capital expenditures and, therefore, must be considered in formulating the budget. The Politician's recorded votes on these issues also have implications for his re-election.

The Politician has several aids available to him which may guide his actions. Perhaps the most important of these is the newspaper, which will direct his attention to important issues and to capital improvement needs in his jurisdiction; it will also give him information on the economic conditions at the National, State, and local levels which may aid his decision-making. Actual per capita expenditures for particular governmental services are printed as part of the budget in the Politician's output; these may be compared to a "standard" per capita expenditure which is based on a national average. This comparison can guide the Politician's operating budget decisions.

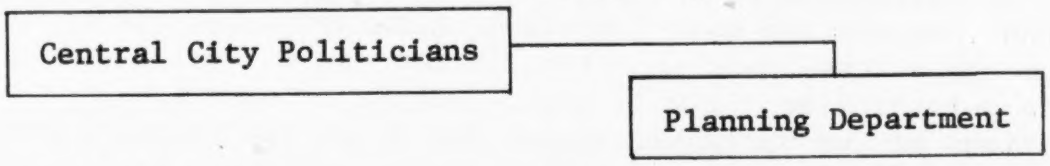
In formulating policy and in making decisions in general, the Politicians may wish to make use of the information of the Planner and to otherwise take advantage of his services. For example, the Planners' output contains specific information on each analysis area, including per capita assessed valuation, capital plant indices, population changes, and other social indicators. In addition, the Politicians may ask the Planners for their informal views on certain matters and/or ask them to prepare special reports.

The Politicians also have a number of other sources of information. For example, public support or opposition to specific issues may be found in the newspaper. Opinions may also be obtained from informal contacts with the other players, particularly the Developers and Industrialists. The Politician's standing with specific constituent groups is included in the newspaper; these figures reflect public attitudes toward the Politicians' handling of public affairs and, therefore, can serve to guide his decisions.

Delegation of Powers

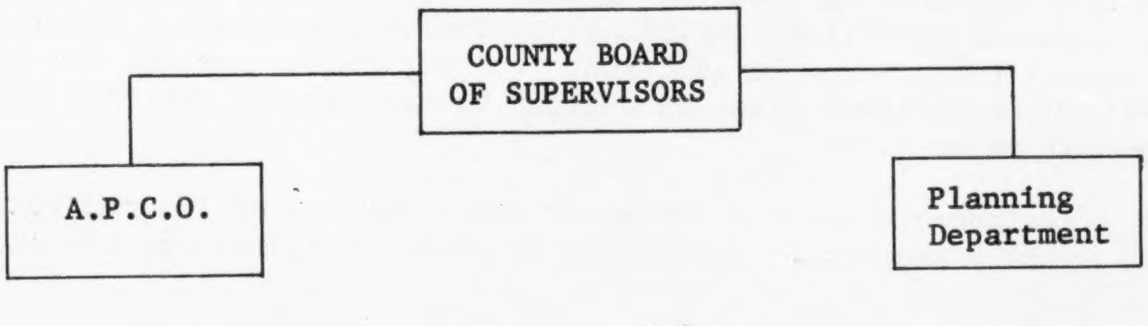
APEX is divided into two main governing bodies, the Central City Politicians and the County Board of Supervisors. Normally there are 3 Central City Politicians. Each City Politician represents one of the three wards in the Central City. On the County Board there are 5 Board members. They represent the following: the Suburb, Township 1, Township 2, County Politician at Large, and Central City representative on the County Board. While there are a possibility of 8 Politicians discussed, here, the Game Director can delegate more or less people in each role.

The role of the Politician is perhaps the most powerful one in the game. The Politicians determine the direction and welfare of the City and County. To do this task the Politicians have help in the way of different departments. The Central City Politicians have the planning department to help them. These planners have much more information on each analysis area than the Politicians. The Politicians can delegate the gathering and securing of vital information. If they fail in their tasks, the Politicians can hire and fire these planners. Of course, some justification will be necessary. However, the planners are politically appointed and serve at the discretion of the Politicians.



The County Politicians have the same power over their Planners. They also have the right to hire and fire their Air Pollution Control Officer. If he is not doing the job of cleaning up the atmosphere over APEX or if he is doing too "good" of a job and is closing down industry, he may be fired by the County Board of Supervisors.

In any firing, a replacement must be found by the Politicians and the Game Director will place the person fired into another role.



Monies

The Politicians have two budgets and one fund that they must be concerned with each cycle: the Operating Budget; the Capital Budget; and the Debt Retirement Fund. These three items are separate and independent by State Law. Money can be transferred from the Operating Budget to the Capital Budget and to the Debt Retirement Fund. However, this money cannot be transferred back.

1. Operating Budget
2. Capital Budget
3. Debt Retirement Fund

Direction
of
Transfer
of
Money

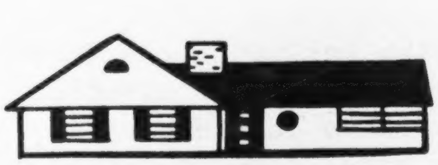
If the Politician finds a deficit in the Capital Budget or Debt Retirement Fund, he can transfer money from the Operating Budget. If a surplus occurs in the Capital Budget or Debt Retirement Fund, or if a deficit occurs in the Operating Budget, the Politician cannot transfer funds out of these Budgets.

The question of "how much money should be kept in each of these budgets and funds?" is often posed. The Debt Retirement Fund should contain enough money to meet the minimum payment required for next cycle. Since the function of the city or county is to meet the needs of the people, the Politicians should generate enough funds to meet those needs. Some cycles a surplus may be obtained while other cycles a deficit may be incurred. The Politicians should not tax the people just for the sake of building up a surplus in either the Operating or Capital Budget. The Politician should not regard his citizen as an industry, and need not show a profit each year. Obviously, a deficit is even less desirable.

Millage and Assessed Valuation

The major source of revenue for the Politician is through the levying of taxes on property. Each year the city and county Politicians send out assessors who look at the market value of property and then assess that property at a given percentage rate of the market value. An example might be helpful:

If the Assessment Rate = 50% of the market value,

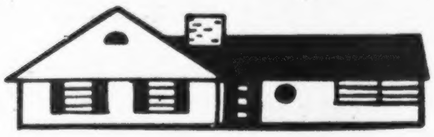


Market Value - $10,000.

Assessed Value = $5000.

The tax rate is in mills. One mill is equal to $1 of every $1000 of assessed value of property. If there is a tax in effect of 5 mills, the example would look like this:

1 mill = $1 for every $1000 of assessed value
Tax per mill = $5
Actual millage = x 5 mills
Total Tax = $25

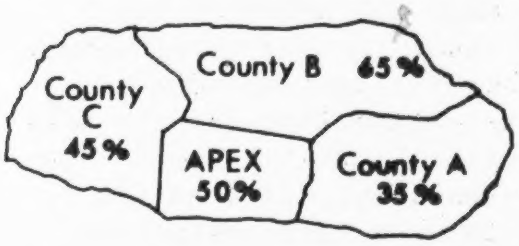


Market Value = $10,000
Assessed Value = $5,000

The person who owns this piece of property would then pay a tax of $25 on his property.

State Equalization Factor

Under item 1 - "Tax Revenue" of the Operating Budget the Politician will see in parenthesis "(State Equalization Factor)". By State Law each county must assess at the same rate. As stated earlier, APEX assesses at 50% of the market value of the property. However, not every county assesses at that same rate. Some counties assess at 35%, others at 45%, while others can assess at a much higher rate. The state then takes all these different rates and comes up with a common factor so that each county will then be assessing at the same rate. By multiplying this "State Equalization Factor" times the total assessed value of the entire community, the new total equalized value is the dollar amount that would be taxed that cycle.



Under item F of the "Operating Budget Revenue Generation" the total equalized value for the next cycle is given. By using this figure, the Politician can quickly determine if his tax base has either increased or decreased this cycle.

Project Lists

The projects are organized by budget categories including (1) streets, (2) sewers, (3) water, (4) parks and recreations, and (5) miscellaneous. The allowable locations for each project are shown on the project list. Some projects are appropriate to an analysis area, some to a ward of the Central City, and others to an entire jurisdiction. A few projects are restricted to a particular analysis area. In addition to specifying a location for the project, the list indicates the area that will be affected by the project. This is the area which will share in the services of the project, and the area in which the Capital Plant Index will be affected. Another column indicates if any land will be required to initiate the project.

For each project, there is also a range of costs. The lower end of the range reflects stop gap measures while the higher end indicates high quality improvements. These figures represent the total dollar costs for the project. To obtain annual costs, the total must be divided by the number of years the project will run. For example, a project which costs $300,000 and runs for two (2) cycles will be amortized through two (2) installments of $150,000 each. A multi-year project which has been approved by the Politicians need not be resubmitted in subsequent cycles. It will automatically be continued for the number of years indicated on the project list. The final column will indicate whether or not this particular project could be funded through a revenue bond. Revenue and general obligation bonds will be covered in the next section.

Also included at the end of the capital improvement projects is a list of special programs that the Politician may implement. These special programs differ from capital improvement projects in that they primarily deal with social services and most of the costs are used to support personnel. However, in some cases facilities must be constructed or expanded to accommodate the special programs. In this case, a capital project will have to be requested also. Once the facilities are constructed they can continue to be used if, and when, the special program is renewed. This is similar to the capital project list except that the cost indicated is an annual cost rather than a total cost. Again, once a special program has been initiated, it must be carried for at least the number of cycles specified on the program list.

Bonding

Bonding is the process of incurring public debt to finance some capital improvement project. Bonding is an alternate means of paying for a project. There are two types of bonds in APEX: (1) Revenue Bonds and (2) General Obligation Bonds.

1. Revenue Bonds

Revenue bonds differ from General Obligation Bonds in that the project will be paid by the users instead of by taxes. These users are charged a fee, which is then used to pay-off the holders of the bond. This payment includes both principle and interest.

Example:

Politicians
Decide to
Implement
Project through
Revenue Bond

$100,000 Parking Garage → Sell Bonds to the public to finance Project → Collect Fees from Project → PAYBACK HOLDERS OF BONDS PRINCIPLE & INTEREST

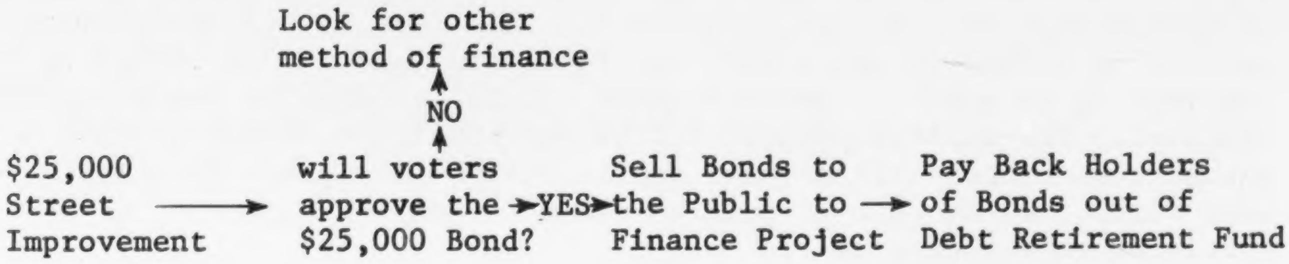
Not all projects can be financed through Revenue Bonds. Only those projects labeled YES in the last column of the Project List can be financed through Revenue Bonds. Revenue Bonds do not require voter approval, i.e. no referendum is needed.

2. General Obligation Bonds

General Obligation Bonds differ from Revenue Bonds in that they require voter approval (i.e. a referendum) before they can be sold, since the payments of these bonds will be made by taxing the citizens. These payments are then paid out of the Debt Retirement Fund.

Example:

Politicians decide to
implement project through
General Obligation Bond


Look for other method of finance
NO
$25,000 Street Improvement
will voters approve the $25,000 Bond?
YES
Sell Bonds to the Public to Finance Project
Pay Back Holders of Bonds out of Debt Retirement Fund

Both types of bonds attract speculators. Both bonds guarantee the interest for the life of the bond. If a general obligation bond could be paid off sooner, the interest would still have to be paid as to the original number of years stated on the bond. That is one reason why these bonds are not called in early. Secondly, the interest paid on these bonds is usually tax exempt at the local, state and federal levels.

Exofirms

The Politician may look for methods of generating more income in his Operating Budget. One method of doing this is to attract an Exofirm into his jurisdiction. An Exofirm is an industry or bureaucratic firm that depends primarily upon markets outside the local area for its growth and vitality. These firms are usually classified as Exofirms on the basis of their being net importers of dollars and net exporters of products or services to these outside markets. Jobs created by Exofirm growth spur additional growth of households and jobs oriented to the local market.

If the Politician looks at the Business Page of the APEX Gazette, he will see a section entitled "New Firms Planning to Come to A.P.E.X. Area". Example:

```
        NEW FIRMS PLANNING TO COME TO A.P.E.X. AREA
        -------------------------------------------

DAIRY PRODUCTS CORP.              (E)XOFIRM NO.  1) PREFERS LOCATION IN ANALYSIS AREAS  6  0  0, WILL USE  6.30 ACRES,
        WILL HAVE 105 EMPLOYEES AND WILL ADD  410000. DOLLARS TO THE TAX BASE.
        POLITICIANS NOTE-- REZONING NEEDED TO M-4 (VACANT INDUSTRIAL).
        REALTORS NOTE--INVESTMENT OPPORTUNITY OF 100000. DOLLARS.
```

Should the Politician decide that he wants to attract this firm, he would see that $410,000 would be added to the tax base of his jurisdiction. It would also supply 105 new jobs thus alleviating welfare and other costs in the community. It should be pointed out the Exofirm wishes to locate in analysis area 6. The Politician can work with a land developer and try to entice the Exofirm into an analysis area in his jurisdiction. It would be helpful if the Politician can persuade the land developer to invest some money in the Exofirm's development. The Politician should also work with the Planners to see if any rezoning might be required or if any land use categories will be violated. Usually the Politician must initiate either one or a series of Capital Improvement Projects to satisfy the needs of that Exofirm. These projects should be noted in the Capital Budget.

SECTION 4. ANNOTATED POLITICIAN WORKSHEET

I. ELITE OPINION POLL

Each year certain issues will appear in the APEX Gazette which require decisions from all role players, acting as the "elite" or power structure of the community. In some cases the decision of the elite is binding on the Politicians and the poll can be considered the same as submitting a referendum to the voters. Here the Gazette will read "DECIDED BY OPINION POLL MAJORITY." In other cases, the decision of the elite is merely advisory, and the Politicians can decide whether or not to heed their mandate. Here, the Gazette will read "POLITICIAN'S ULTIMATE DECISION BUT ELITE OPINION SOLICITED."

The outcome of the vote will be recapitulated in the next cycle's newspaper. For each issue outcome, the newspaper will also print the reactions of five pressure groups--Civil Rights Group, Good Government League, Chamber of Commerce, Unions, and Ultra-Conservatives.

Players should vote on all issues in the Elite Opinion Poll, including those on the Business Page. Each role will have one vote. In the cases where there is more than one person in a role, they will have to come to an agreement.

The Elite Opinion Poll is especially important to the Politicians because their actions relative to the poll may affect their chances for re-election.

Instructions: The cycle number should be indicated in the upper right hand corner. Locate the column labeled for the area which you represent. Then put the issue number in the left hand column (this should not be confused with a project number), and the number of the alternative chosen in the adjacent column.

II. OPERATING BUDGET

The principle method of revenue generation in the Operating Budget is by levying a tax on the equalized assessed valuation of property within the jurisdiction. The tax rate is in mills, one mill being equal to $1 of every $1000 of assessed value of property. Therefore, if a piece of property is assessed at $10,000 and there is a tax in effect of 5 mills, the owner would owe $50 in taxes. (5 mills x $10 = $50.) In the game there are two types of millages: **Normal** Operating Millage and Special Millage.

A. Estimation of Revenue Generation Through Increases in the Millage

It would be helpful if the Politician had some way of determining how much revenue would be generated next cycle through tax increases. If the Politician refers to the "OPERATING REVENUE

GENERATION" of his listing he will be able to estimate how much revenue could be generated. Looking at Item "F"--TOTAL EQUALIZED VALUE, END OF CYCLE--the Politician will have the equalized assessed valuation of all land in his jurisdiction. As mentioned before, $1 for every $1000 of assessed valuation is generated for every mill taxed. Therefore, if we take the value given in Item "F" and divide it by 1000 we would have the amount of revenue expected from an increase of one mill. Then, multiplying this amount by the expected increase in the millage rate, the Politician will have a good estimate of the amount of money that will be generated next cycle for the Operating Budget.

Instructions: Take the dollar amount listed under Item "F" of the Operating Budget Revenue Generation and divide by 1000. This will give the expected revenue generated for a tax of one mill. Then take the total expected millage increase and multiply by the amount calculated for one mill. This total will go into your Operating Budget.

Example:

```
                      OPERATING BUDGET REVENUE GENERATION

   LEVELS AND LIMITS (WITHOUT FURTHER VOTE)

    STATE LIMIT ON NORMAL OPERATING MILLAGE = 10.00

   LOCAL LIMIT ON NORMAL OPERATING MILLAGE =  5.00

    NORMAL OPERATING MILLAGE REQUESTED     =  4.00 (IF UNCHANGED FROM CURRENT CYCLE)

     TOTAL OPERATING MILLAGES IN EFFECT -- THROUGH CYCLE

    NUMBER       MILLS     1      2      3      4      5      6            REVENUES -- CYCLE  2

     101         0.10      *      *                                        $   65290.

     TOTAL                0.10   0.10   0.0    0.0    0.0    0.0           $   65280.

   TOTAL OPERATING MILLAGES EFFECTIVE CYCLE  2 BEFORE ADDING NEW MILLAGE =  4.10

    TOTAL EQUALIZED VALUE, END OF CYCLE  1 =                   $ 652804056.

    TOTAL PROPERTY TAX REVENUE FOR OPERATING BUDGET IN CYCLE  2 = $ 2676455. (= E. X F.)

                                                               $   26061. (LICENSES AND PERMITS)
                                                               $  186134. (SERVICES)
                                                               $  120156. (OTHER NON-TAX REVENUE)
                                                               $ 1215615. (ROAD COMMISSION -- SEE NOTE BELOW)
                                                               $   10739. (SURPLUS OR DEFICIT FROM CYCLE  1)

                                                             = $ 4235190. TOTAL OPERATING REVENUES FOR CYCLE  2
                                                                             (PROJECTED WITHOUT TAX RATE CHANGE)

                     NOTE -- AT LEAST $  243123., WHICH IS 20 PERCENT OF ROAD COMMISSION REVENUE
                             WILL BE AUTOMATICALLY TRANSFERRED TO THE CAPITAL FUND
                             AND MUST BE SPENT FOR STREET PROJECTS.
```

1.	*Item "F" - "Total Equalized Value, End of Cycle"*	*= $652,804,906*
2.	*Divide Line 1 by 1000 - this is the expected revenues generated by 1 mill.*	*= $ 652,804*
3.	*Multiply Line 2 by expected millage increase*	*x 2.5*
4.	*Expected increase in revenues*	*= $ 1,632,010*

B. Change in Operating Millage

The Normal Operating Millage is determined by local Politicians and is applied to standard operating costs of running the government. This millage is limited by State and local law. The local limit can never be higher than the limit set by the State.

The Politician can lower the operating millage in any cycle without the voters approval. He can also raise the operating millage in any cycle up to the local limit without voter approval.

Instructions: In column 1 check if you want to change the operating millage. If yes, place the new operating millage in column 2.

Example:

Change the Operating Millage		Total New Millage Rate
Yes	No	
X		*14.5*

C. Raise Local Limit

If the Politician wants to go above the local limit, he must submit the change to the voters in the form of a referendum. The Politician will circulate this referendum among the players explaining why this increase is needed. Each player will either approve or disapprove the increase. The more players who approve the increase, the better the chance of its passage. Promotional expenditures may be made to help in the passage of this referendum. If any promotional expenditures are to be made, Item "K" of the Operating Budget should indicate the money to be spent. The Politician also has the option of resubmitting the referendum one more time if it is voted down the first time. The referendum is put back on the ballot at a reduced rate of millage 15% below the original rate. This is done by the computer in the same cycle if the issue is to be resubmitted to the voters.

Instructions: *In column 1 enter the number of years you want the increase to run. In column 2 put the number of mills that you plan on increasing the local limit. In column 3 enter the promotion expenditure, if any. In column 4 check whether or not you want the referendum to be resubmitted to the voters. Finally, take the opinion poll to as many players in the game as possible for their opinion, either for or against the referendum.*

Example:

C. Raise Local Limit

Number of Years to Run	Millage Increase	Promotion Expenditures (if any)	If voted down, should it be resubmitted	
			Yes	No
3	*2.0*	*none*	*X*	

The form for polling the gamed players is found in Section V of the worksheet.

D. Special Programs

Special Programs differ from capital improvement projects in that they primarily deal with social services and most of the costs are used to support personnel. However, in some cases, facilities must be constructed or expanded to accommodate the special programs. The Politician can pay for these special programs by either attaching a special millage to the program or by paying for it directly out of his Operating Budget. He cannot pay for a special program out of his Capital Budget. The total cost of all special programs not funded by a special millage should be listed under Item "N" of the Operating Budget.

Instructions: *In column 1 place the program number. In column 2 place the location. In column 3 check the method of financing. Place the annual cost in column 4. If a capital project is associated with this special program and it is already in existence, indicate this in column 5. Finally, find the sum of the annual cost for all new special programs. Note: if the program is financed by a special millage, please enter the number of the millage (see II E) in the column labeled special millage.*

Example:

```
---------------------------------------------------------------------------------------------------------------
SPECIAL   AVAILABLE   CYCLES                      TITLE                                  COST PER   CAPITAL PROJECT
PROGRAM      FOR      TO RUN                                                               YEAR      ALSO REQUIRED

   1      ANY AA        3     SUMMER RECREATION PROGRAM FOR POOR CHILDREN               $ 20000.          88
   2      ANY AA        3     PARKWAY TREE-PLANTING PROGRAM                             $ 15000.
   3      ANY AA       15     SANITARY LAND FILL                                        $ 15000.          55
   6      ANY WARD      3     DAY-CARE CENTER FOR CHILDREN OF WORKING MOTHERS           $ 50000.          89
  10      ANY JUR       3     SUMMER CAMP PROGRAM FOR DISADVANTAGED YOUTH               $120000.
  11      ANY JUR       5     JOB-CORPS CENTER FOR SCHOOL DROP-OUTS                     $ 50000.          85
  12      ANY JUR       3     POLICE CIVILIAN REVIEW BOARD                              $ 12000.
  13      ANY JUR       5     POLICE-COMMUNITY RELATIONS BUREAU                         $ 15000.
  14      ANY JUR       3     RENT SUPPLEMENT PROGRAM FOR POOR FAMILIES                 $200000.
  15      ANY JUR       4     MAJOR RETRAINING PROGRAM FOR UNEMPLOYED                   $125000.
```

D. Special Programs

New Special Program Number	Location	Method of Funding		Cost per Year	Is Required Capital Project in Existence?
		Operating Budget	Special Millage		
10	*Sub*	*X*		*120,000*	
11	*C.C.*	*X*		*50,000*	
15	*Co.*	*X*		*300,000*	
13	*Sub*		*2*	*15,000*	

If any special program requires a capital improvement project, be sure and include this project in the Capital Budget. If the required Capital Improvement Project is in existence already, just check column 5 as indicated in the instructions. DO NOT LIST EXISTING SPECIAL PROGRAMS ON THIS FORM.

E. Special Millage

A millage can be levied to help finance a particular special program. Since this is a special millage, it requires voter approval. This Special Millage is submitted to the voters as a referendum. The Politician will circulate this referendum among the other players explaining why this special operating millage is required. Each player will then either approve or disapprove the special millage. The more players who approve this special millage the better the change of its passage. Promotional expenditures may be made, thus helping in the passage of the referendum. If any promotional expenditures are to be made, Item "K" of the Operating Budget should show the amount of money spent. The Politician also has the option of resubmitting this referendum one more time if it is voted down the first time.

The referendum is put back on the ballot, but at a reduced rate 15% below the original rate; this occurs in the computer in the same cycle if the issue is to be resubmitted to the voters. Since it is a special tax, it usually only runs for 1 to 4 years. This millage is not subject to State and local limits.

<u>Instructions:</u> In column 1 place the number of years the special millage will run. In column 2 list the number of mills. In column 3 place promotion expenditures, if any. Check column 4 if you want the Special Millage to be resubmitted to the voters. Then take the opinion poll to as many players in the game as possible for their opinion, either for or against the referendum. Finally, sum all new millages submitted this cycle.

<u>Example:</u>

```
C. SPECIAL CPERATING MILLACES IN EFFECT -- THROUGH CYCLE

     NUMBER       MILLS      1      2      3      4      5      6            REVENUES -- CYCLE  2

      101         C.1C       *      *                                          $   6528C.

     TCTAL                 C.10   C.1C   0.C    0.C    C.C    C.C              $   65280.

E. TCTAL CPERATING MILLAGES EFFECTIVE CYCLE  2 BEFCRE ACCING NEW MILLAGE =  4.1C

F. TOTAL ECUALIZED VALUE, END OF CYCLE  1 =                   $ 652804096.

G. TCTAL PRCPERTY TAX REVENUE FCR CPERATING BUCGET IN CYCLF  2 = $ 2676455. (= E. X F.)

                                                              $   26061. (LICENSES AND PERMITS)
                                                              $  186134. (SERVICES)
                                                              $  120156. (OTHER NON-TAX REVENLE)
                                                              $ 1215615. (ROAC COMMISSION -- SEE NOTE BELCW)
                                                              $   1073C. (SLRPLLS CR DEFICIT FRCM CYCLE  1)

                                                            = $ 423515C. TOTAL OPERATING REVENUES FCR CYCLF  2
                                                                           (FRCJECTED WITHCUT TAX RATE CHANGE)
```

E. Special Millages

Special Millage	No. of Years Special Millage Runs	No. of Mills	Promotional Expenditure (if any)	If voted down, should it be resubmitted?
1	*3*	*1*	*$500*	*no*
2	*3*	*.5*		*yes*

Total Number of Mills *<u>1.5</u>*

The form for polling the gamed players is found in Section V of the Worksheet.

After all Special Millages are listed, go to the section where Special Programs are to be listed.

F. Cash Transfers (to other players)

The reasons for cash transfers between the Politicians and the other players in the game are many and varied. They can represent fees for services rendered, indirect campaign contributions, loan agreements between players, and so forth. They will be recorded under "MISCELLANEOUS NOTES" on the Politicians listing. As an example, the County may initiate a project with the city paying for part of it. The County will pay the entire cost of the project and the city will transfer its share of the funds through a cash transfer.

Instructions: Indicate the player to whom you are making a cash transfer in the first column, the amount of the cash transfer in the second column, and the reason for the transfer in the third.

Example:

F. Cash Transfers (to other players)

Player	Amount	Reason
Dev. #5	*$600*	*consulting services*
Game Op.	*$200*	*2 lines in Gazette*

G. Change in Operating Expenditures

The Politician must also decide how much money he is going to allot for operation of his jurisdiction. If each Politician reviews his Operating Budget, he will see under Item "4" -- OPERATING EXPENDITURES" -- those categories which he can control. It should be pointed out that categories A through I will differ from the County to the other jurisdictions. Categories J to P are the same, and only the County has category P, "TRANSFER TO ROADS CAPITAL FUND."

Changes in the operating budget must be made on an item-by-item basis; only altered items need be entered on the "worksheet".

There are two ways in which changes may be made: (1) as a dollar amount and (2) as a percentage of line 3 - "TOTAL GENERAL (OPERATING) FUND" - of the Printout. The dollar amount change will result in a new percentage being calculated for the item being changed. This new percentage will be maintained in subsequent cycles until another change is processed. When a change in percentage is entered, the dollar amount will change appropriately and the percentage will be maintained until another change is processed. In general, when no changes are entered, the percentages carried over from the previous cycle will be used to determine the expenditures for each item. There are several exceptions to this general rule, however: (1) the"Legislative and Executive" category for the City and the "Legislative and Administrative" category for the County will maintain the exact dollar amount. (2) the cash transfer to other players for both City and County, and Funds for the County Air Pollution Control Office are controlled by other worksheet entries. (3) Special Programs in both City and County will be funded automatically from the operating fund for expenditures in excess of funds available through the "Special Operating Millage". (4) the "TRANSFER TO CAPITAL FUND" and the "TRANSFER TO DEBT RETIREMENT" must be entered separately each cycle; if no entry is made, a zero amount will be transferred automatically.

III. CAPITAL BUDGET

After the Politician has read the newspaper and ascertained what problems should be met, he should in some "rational" manner arrive at a list of improvements to meet the needs of his constituency. Another important input to this decision-making process will be the Planners' recommendations for new projects to be started next cycle. Using this list of improvements in conjunction with his project list, the Politician will start to decide which projects should be implemented this cycle. Once a set of projects has been decided on, the method for funding must be selected. One method of funding is through bonding, which is the process of incurring public debt to finance some capital improvement project. Bonding is used to extend the incidence of costs over a long period of time, rather than have costs met totally out of current revenues while the project is under construction.

A. Revenue Bonds

If the Politician examines his project list, he will see that the last column is labeled "REVENUE BONDS." There are certain projects which, if implemented, will be paid for by the users instead of by taxes. These users are charged a fee, which is collected by the jurisdiction. This money is then used to pay off both the principal and interest that is due to the holders of the Revenue Bonds. In essence, the project pays for itself. This payment continues until the debt is erased. All Revenue Bonds will automatically be sold; i.e., there is no voter approval needed, and the model assumes there is always a market for this type of bond.

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Instructions: *The number of the Revenue Bond is in column 1. In column 2 place the budget category from the 5th column of the project list. In column 3 place the number of cycles the Revenue Bond is to run. In column 4 place the dollar amount that is to be spent for the project. Finally, the sum of all new Revenue Bonds should be calculated.*

A. Revenue Bonds

Revenue Bond	Budget Category	Cycles for Revenue Bond to Run	Total Cost in Dollars
1	*Sewers*	*14*	*$ 60,000*
2	*Sewers*	*25*	*$450,000*

Total for all Revenue Bonds *$510,000.*

```
3. REVENUE BONDS IN EFFECT --

          PRINCIPAL      INTEREST   CYCLES        FEES                PAYMENT  DUE  IN  CYCLE  2
  NUM     OUTSTANDING      RATE     TO RUN      COLLECTED       PRINCIPAL       INTEREST           TOTAL

    9     $  3450000.      6.50       24      $   36800.     $   143750.   $   224250.   $    368000.
  103     $    60000.      6.00       10      $    5600.     $     6000.   $     3600.   $      9600.

 TOTAL    $  3510000.                                                                  $    377600.

4. CREDIT RATING OF JURISDICTION  1 IS 1

  A.  $ LIMIT ON NEXT G. O. BOND SOUGHT        $24169728.

  B.  INTEREST RATE ON NEXT G. O. BOND              4.5

  C.  INTEREST RATE ON NEXT REVENUE BOND            6.0
```

After all the bonds are listed, go to section where the projects are to be listed and fill in the required information.

B. General Obligation Bonds

General Obligation Bonds differ from Revenue Bonds in three aspects:

1) Before Politicians may float General Obligation Bonds to finance projects, voters must approve this action in a referendum. There is a State imposed limit on the indebtedness that a jurisdiction may incur through General Obligation Bonds.

2) General Obligation Bonds are paid off by taxing the citizens. This tax is known as a Special Debt Retirement Millage.

3) Any project that is not funded by a Revenue Bond can be funded through a General Obligation Bond.

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The passage of this General Obligation Bond involves submitting a referendum to the voters. The Politician will circulate an Opinion Poll among the other players, explaining why this bond is needed. Each player will then mark either his approval or disapproval of this bond. The more players who approve this bond, the better the chance of its passage. General Obligation Bonds are often long-term debts that normally run from 10 to 25 years. Promotional expenses may be spent to help in the passage of the bond. If any promotional expenditures are to be made, Item "K" of the Operating Budget should show the amount of money spent. The Politician also has the option of resubmitting this referendum one more time if it is voted down the first time it is submitted. The referendum is put back on the ballot, but at a reduced rate of 85% of the original bond request. This occurs in the computer during the same cycle if the issue is to be resubmitted to the voters.

Instructions: The number of the bond is in column 1. In column 2 place the budget category which is taken from the 5th column of the project list. In column 3 place the number of cycles the General Obligation Bond is to run. In column 4 place the amount of the General Obligation Bond. In column 5 place the promotional expenditures, if any. Check column 6 if you want the General Obligation Bond to be resubmitted to the voters. Then take the opinion poll to as many players in the game as possible for their opinion either for or against the referendum. Finally, the sum of all new General Obligation Bonds should be calculated.

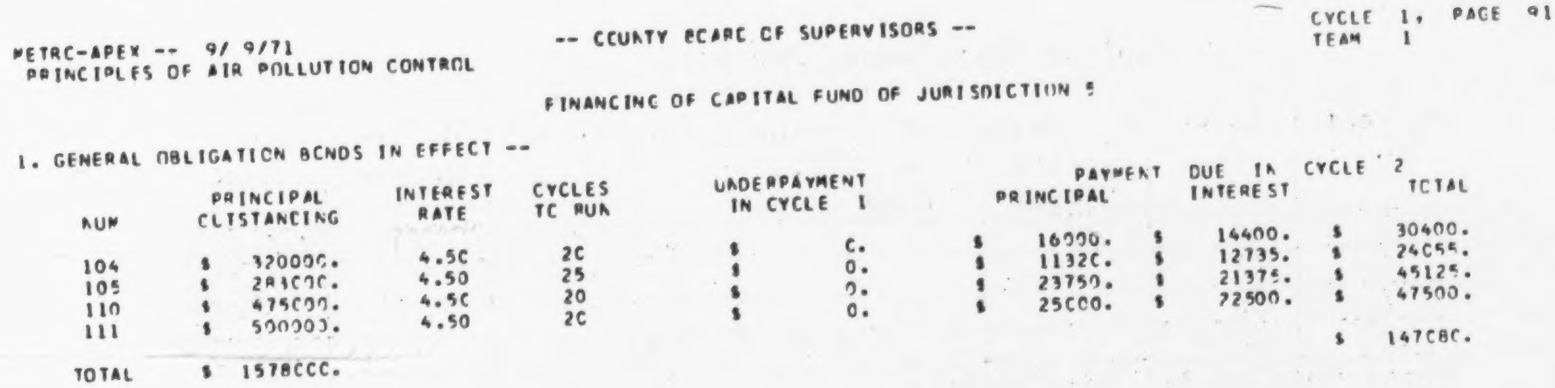
PROJ NUMB	LOCATED IN	CPI IMPACT	ACRES REQ'D	BUDGET CATEGORY	TITLE	CYCLES TO RUN	TOTAL DOLLAR COST MINIMUM	MAXIMUM	REV. BOND
1	ANY AA	AA	0.0	STREETS	RESURFACING OF NEIGHBORHOOD STREETS	1	$ 6000.	$ 10000.	NO
2	ANY AA	AA	0.0	STREETS	RESURFACING OF SECONDARY STREETS	1	$ 50000.	$ 75000.	NO
3	ANY WARD	WARD	0.0	STREETS	REPAIR, RESURFACE PRIMARY STREETS	1	$ 100000.	$ 150000.	NO
4	ANY AA	AA	0.0	STREETS	WIDEN SECONDARY STREET	1	$ 90000.	$ 120000.	NO
5	ANY AA	WARD	0.0	STREETS	WIDEN PRIMARY THOROUGHFARE	2	$ 300000.	$ 400000.	NO
6	ANY AA	AA	0.0	STREETS	CONSTRUCT NEIGHBORHOOD STREETS	2	$ 35000.	$ 50000.	NO
7	ANY AA	AA	0.0	STREETS	CONSTRUCT SECONDARY STREET	2	$ 175000.	$ 225000.	NO
8	ANY AA	WARD	0.0	STREETS	CONSTRUCT PRIMARY STREET SEGMENT	2	$ 500000.	$ 750000.	NO
9	ANY AA	WARD	0.0	STREETS	CONSTRUCT EXPRESSWAY FEEDER STREET	4	$ 170000.	$ 220000.	NO
10	ANY AA	AA	0.0	STREETS	INSTALL NEIGHBORHOOD STREET LIGHTS	1	$ 20000.	$ 30000.	NO
11	ANY AA	AA	0.0	STREETS	NEW AREA-WIDE STREET LIGHTING	1	$ 50000.	$ 70000.	NO

Example:

B. General Obligation Bonds

General Obligation Bond	Budget Category	Cycles to Run	Amount	Promotion Expenditure (if any)	Resubmit if voted down?
1	streets	20	50,000		yes
2	streets	1	$100,000	$5,000	yes

Total for All General Obligation Bonds $150,000



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                                        -- CCUNTY ECARC CF SUPERVISORS --                         CYCLE  1,  PAGE  91
METRC-APEX --  9/ 9/71                                                                            TEAM   1
 PRINCIPLES OF AIR POLLUTION CONTROL
                                            FINANCING OF CAPITAL FUND OF JURISDICTION 5

1. GENERAL OBLIGATICN BCNDS IN EFFECT --
                                                                                  PAYMENT  DUE  IN  CYCLE  2
            PRINCIPAL         INTEREST   CYCLES        UNDERPAYMENT          PRINCIPAL         INTEREST          TOTAL
  NUM      CUTSTANCING         RATE      TC RUN         IN CYCLE  1
                                                                                                            $   30400.
  104     $    320000.         4.5C        2C        $          C.      $    16000.     $    14400.     $   24C55.
  105     $    283C0C.         4.50        25        $          0.      $    1132C.     $    12735.     $   45125.
  110     $    475C00.         4.5C        20        $          0.      $    23750.     $    21375.     $   47500.
  111     $    500000.         4.50        2C        $          0.      $    25CC0.     $    22500.
                                                                                                        $   147C8C.
TOTAL     $  1578CCC.
```

The form for polling the gamed players is found in Section V of the worksheet.

After all the bonds are listed, go to the next section (where the projects are to be listed) and fill in the required information.

C. Capital Improvement Projects

It is possible that a surplus of funds could end up in the Capital Budget of the Politicians. If Item "10" -- "UNENCUMBERED BALANCE" is positive,this represents a surplus and can be used to pay for new projects directly. These are funds that have not been committed to any project. If Item "10" is negative, a deficit will result after all of the encumbered (committed) funds are spent. If this is the case, the funding of your capital improvement projects will have to be done by bonding or transfer of the money required from the Operating Budget. (It is not necessary to record previously budgeted multi-year projects.)

Instructions: In column 1 list the project number. In column 2 write in the location. In column 3 check the method of funding. In column 4 place the total amount spent for the project. In column 5 place the number of years the project will run. In column 6 divide the total cost of the project by the number of years to run, giving you the annual cost of the project. Finally, sum up the total cost of all projects and the total annual cost of all projects.

Note: If the project is financed by a Revenue Bond or a General Obligation Bond, please enter the number of the bond (see III-A and III-B).

Example:

C. Capital Improvement Projects

Project No.	Location	Method of Funding			Total Cost	Cycles to Run	Annual Cost
		Capital Budget	Revenue Bond	G.O. Bond			
1	*8*	*X*			*$ 8,000*	*1*	*$ 8,000*
1	*13*	*X*			*7,000*	*1*	*7,000*
1	*12*	*X*			*9,000*	*1*	*9,000*
40	*13*			*X*	*60,000*	*1*	*60,000*
Total Cost of All New Projects					*$84,000*		
Total Annual Cost							*$84,000*

If after listing all of the new capital improvement projects the Politician finds he cannot afford to finance all of these projects, he will have to do one of the following: transfer funds from his Operating Budget; come up with an alternative scheme for funding; or decide which projects have the highest priority and delay implementation of the others.

D. Land Purcheses

There are certain capital improvement projects that require land; by looking at column 4 of his project list, the Politician can see which projects these are. If one of these projects is initiated and there is vacant public land of any type available in the specified analysis area, the project will be placed on this vacant land. If there is not enough land available, the Politician has the option of either buying the additional land himself or letting the computer buy it for him. The computer will automatically buy whatever type of land is needed. The computer will look first for vacant single family residential land. If there is none available, it will purchase developed land and charge the Politician demolition fees. In this case, the resulting purchase and demolition fees might cost the Politician as much as 5 times what it would have cost if he had purchased it himself. The Politician may want to consult the Planners for help in reading the tables that contain land distribution and prices. The Planners can also help the Politicians with any rezoning that may be required.

A record of all land purchases will appear under "MISCELLANEOUS NOTES" on the printout under a section labeled "REAL ESTATE TRANSACTIONS." The expenses will be listed as item "7" -- "TOTAL LAND PURCHASES IN CYCLE" on the Capital Budget.

Instructions: *In column 1 indicate the player from whom you are buying land, and in column 2 the analysis area of the land. If the Politician is not buying the land from a Developer or Industrialist, then list the "MARKET" in column 1. Use column 3 to show whether the land is vacant or developed at the time of purchase and column 4 to indicate the zoning category or developed land use type. Use column 5 to show the number of units involved, if the property is developed residential; otherwise, indicate the number of acres in column 6. The negotiated price per acre or per unit should appear in column 7, and the total price in column 8. Then total all land purchases. (This same form is used for the selling of land.)*

Example:

D. Land Purchases

Seller	AA	Vac/ Dev.	Zone Cat.	No. of Units	or	No. of Acres	Price/Acre Price/Unit	Total Price
Market	*15*	*vac*	*Ind*			*5.3*	*$30,000*	*159,000*
Market	*6*	*Dev*	*R-2*	*10*			*$21,000*	*210,000*
Total Land Purchases								*$369,000*

E. Cash Flow of Capital Budget

After making some preliminary decisions on the projects to be implemented this cycle, it would be helpful for the Politician to begin to fill out his Capital Budget Worksheet. The worksheet was designed to show cash flows that occur in the Capital Budget. The explanation given below is used as a guideline to show the Politician the sources of the numbers that appear on the worksheet.

1. Revenue Generation for Capital Budget

   (a) Balance of Capital Fund carried forward (Item 10 of the Output)

   (b) New Bond Sales--this includes all new bond sales, both Revenue and General Obligation Bonds.

   (c) Transfers from General Fund--this is usually filled in last after determining whether or not a deficit will occur in the Capital Budget.

Note: A Transfer of Capital Road Funds from the Operating Budget will occur automatically; these are revenues collected through a tax on gasoline. This money is collected by the state and then redistributed to each of the counties. By state law at least 20% of this Road Commission Revenue will be automatically transferred to the Capital Budget. At least this much money must be spent for new street and road projects; the projects can be distributed throughout the entire county. The County Politician will find dollar amounts that should be spent next cycle under item G of the "OPERATING BUDGET REVENUE GENERATION." The last line reads , for example:

```
NOTE -- AT LEAST $  243123., WHICH IS 20 PERCENT OF ROAD COMMISSION
        REVENUE WILL BE AUTOMATICALLY TRANSFERRED TO THE CAPITAL FUND
        AND MUST BE SPENT FOR STREET PROJECTS.
```

(d) Special Grants are both Federal and State monies that are received as a result of the Politicians' written proposals.

The Politicians may sometimes find themselves in financial difficulty. They may have new ideas to improve either the City or County, they may make a proposed study, or their jurisdictions may be declared disaster areas. Whatever the reason, Politicians can always request State and/or Federal funds. Requests consist of a minimum of one and a maximum of 10 pages of a proposal to the game director. In this proposal the Politicians must explain what the proposal is for, why it is needed, why the jurisdiction can't completely pay for the project, how the money will be spent, whether or not matching funds are to be used, etc. The game director will give the Politicians either all of the funds requested, part of the funds requested, or turn down the proposal completely.

(e) Balance of Capital Fund -- this is the sum of items (a) through (d).

2. Expenditures for Capital Budget

After completing the Capital Improvement Project worksheet, the Politicians can easily fill in items (a) and (b). Item (c) is taken from the Capital Budget on the printout.

Example:

```
                        THE FOLLOWING CAPITAL IMPROVEMENT PROJECTS WERE CARRIED IN CYCLE  1
                            (INCLUDES MULTI-YEAR PROJECTS APPROVED IN PREVIOUS CYCLES)

PROJ  LOCATED   CPI   ACRES   BUDGET                     TITLE                         FUNDED    CYCLES       ANNUAL
NUMB    IN    IMPACT  USED   CATEGORY                                                  BY BOND   TO RUN        COST
---------------------------------------------------------------------------------------------------------------------

   2  AA  16   AA             STREETS    RESURFACING OF SECONDARY STREETS                          1        $   50000.
   2  AA  29   AA             STREETS    RESURFACING OF SECONDARY STREETS                          1        $   50000.
   4  AA  23   AA             STREETS    WIDEN SECONDARY STREET                                    1        $   90000.
   6  AA  24   AA             STREETS    CONSTRUCT NEIGHBORHOOD STREETS                            2    *   $   18000.
   6  AA  26   AA             STREETS    CONSTRUCT NEIGHBORHOOD STREETS                            2    *   $   18000.
   8  AA  22   WARD           STREETS    CONSTRUCT PRIMARY STREET SEGMENT    '                     2    *   $  250000.
   5  AA  27   WARD           STREETS    WIDEN PRIMARY THOROUGHFARE                      110       2    *   $  150000.
   7  AA  15   AA             STREETS    CONSTRUCT SECONDARY STREET                      110       2    *   $   88000.
 109  AA  29   COUNTY         MISC.      AIRPORT RUNWAY EXPANSION - COUNTY               111       3    *   $  167000.
  80  AA  17   WARD           MISC.      EXPAND AND RENOVATE FIRE STATION                104       2    *   $   60000.
  40  AA  15   AA             SEWERS     CONSTRUCT NEW NEIGHBORHOOD SANITARY SEWER                 1        $   60000.
  60  AA  19   AA       0.5   PARK,REC   DEVELOP AND EQUIP TOT LOT                                 1        $    8000.
  51  AA  18   AA             WATER      EXPAND AREA WATER MAINS                         104       3    *   $   67000.
  66  AA  18   WARD     5.0   PARK,REC   DEVELOP BALL FIELD                                        1        $   22000.
  93  AA  17   JUR      2.5   MISC.      BUILD NEW COMMUNITY LIBRARY                     105       3    *   $   70000.
  18  AA  25   AA       0.5   STREETS    PARKING LOT PAVING AND MARKING                  105       1        $    4000.
  69  AA  28   AA             PARK,REC   REPLACE PLAYGROUND EQUIPMENT                              1        $    5000.
  37  AA  25   AA             SEWERS     EXPAND STORM SEWER CAPACITY                               1        $   50000.
  60  AA  27   AA       0.5   PARK,REC   DEVELOP AND EQUIP TOT LOT                                 1        $    5000.
  71  AA  28   WARD           PARK,REC   REPLACE PICNIC FACILITIES                       105       1        $   10000.
  87  AA  27   AA             MISC.      NEIGHBORHOOD CENTER RENOVATION                  105       1        $    5000.
  37  AA  16   AA             SEWERS     EXPAND STORM SEWER CAPACITY                     105       1        $   50000.
  18  AA  16   AA       0.5   STREETS    PARKING LOT PAVING AND MARKING                            1        $    4000.
  60  AA  21   AA       0.5   PARK,REC   DEVELOP AND EQUIP TOT LOT                                 1        $    5000.
  69  AA  22   AA             PARK,REC   REPLACE PLAYGROUND EQUIPMENT                              1        $    5000.
  71  AA  29   WARD           PARK,REC   REPLACE PICNIC FACILITIES                                 1        $   10000.
  87  AA  14   AA             MISC.      NEIGHBORHOOD CENTER RENOVATION                            1        $    5000.

e.                                   TOTAL DISBURSEMENTS (OTHER THAN LAND)   IN CYCLE   1 $ 1326000.
```

By adding up the annual cost of all those projects that have an asterisk in the column "CYCLES TO RUN", the Politicians will have calculated the "SUM OF ANNUAL COSTS" for all continuing projects. In this example, it is equal to $885,000.

The arrow between items (b) and (d) means that the same number is being used again. Item (e) is just the sum of items (c) and (d).

Item (f) is item (11) of the Capital Budget on your output: "ENCUMBERED FOR PROJECTS NOT YET COMPLETED" (items marked by asterisks in preceeding table). Item (g) is the same as item (c).

Item (h) is the sum of the "ENCUMBERED FUNDS FOR NEW PROJECTS" and the "SUB TOTAL" calculated after item (g). This value is the sum of all encumbered or committed funds for all old and new Capital Improvement Projects.

Item (i) -- "TOTAL CAPITAL IMPROVEMENT FUNDS" is taken from the section above - "REVENUE GENERATION FOR THE CAPITAL BUDGET" (Item (e) from the previous calculations).

Item (j) is the total of all land purchases made during this cycle.

Item (k) is the same as item (e).

If the Balance of Capital Fund is zero or positive, there is enough money to finance all existing and new projects <u>this year</u>. (We also need to know whether there are enough funds for next year.) If there is a negative amount, then the Politician will have to increase his Revenue Generation for the Capital Budget (Section 1), or else not initiate all of the new projects during the current year.

Item (l) is the 6% interest that is added to any surplus in the Capital Budget. Item (n) is the same number as item (h).

Item (o) is the "UNENCUMBERED BALANCE" or non-committed funds. If the Unencumbered Balance is positive there will be a surplus in the Capital Budget. A negative number means that a deficit will result after all payments have been made. It may not occur for several cycles, but unless other sources of revenue are generated, the deficit is inevitable.

```
 50  AA  3    AA          WATER      MAJOR REPAIRS TO NEIGHBORHCOD WATER MAINS              1        $   33000.
 61  AA  4    AA     0.5  PARK,REC   CEVELCP ANC EQUIP VEST-POCKET PARK                     1        $   15000.
 61  AA  5    AA     0.5  PARK,REC   DEVELOP AND EQLIP VEST-POCKET PARK                     1        $   20000.
 67  AA  12   AA     1.0  PARK,REC   CCNSTRUCT FCUR TENNIS COURTS                           1        $   35000.
 69  AA  11   AA          PARK,REC   REPLACE PLAYGROUND EQUIPMENT                           1        $    8000.
 86  AA  8    JUR    5.C  MISC.      CCNSTRUCT A NEW CITY HALL                    102       5    *   $  300000.
 88  AA  1    AA          MISC.      NEIGHBCRHCCC CENTER EXPANSION                          2    *   $   40000.
 88  AA  3    AA          MISC.      NEIGHBCRHCOD CENTER EXPANSICN                          2    *   $   40000.
 88  AA  4    AA          MISC.      NEIGHBCRHCCC CENTER EXPANSION                          2    *   $   40000.

                                         TOTAL DISBURSEMENTS (OTHER THAN LAND)  IN CYCLE  1 $  745000.
6.

7. TOTAL LAND PURCHASES IN CYCLE  1 $  211425.

8. BALANCE REMAINING IN CAPITAL FUNC                  = $ 1057575.  (LINE 5 MINUS LINES 6 ANC 7)

9. INTEREST CN BALANCE                                = $   65854.

10. TOTAL CARRIED TO CYCLE  2                         = $ 1163429.

11. ENCUMBERED FOR PRCJECTS NCT YET CCMPLETEC (* ABOVE)= $ 1320000.

12. UNENCUMBERED BALANCE                              = $ -156571.
```

IV. DEBT RETIREMENT FUND

As stated before, the Politician must keep track of two budgets: the Operating Budget, and the Capital Budget. Moreover, he must also keep track of his Debt Retirement Fund. If a Politician initiates a Capital Improvement Project that is to be paid through the sale of long-term General Obligation Bonds by next cycle, payments will have to be initiated which include both the principal and the interest due on these bonds.

To find out how much is owed this cycle and to see if the Politician has had enough money generated to meet the minimum payment, the Politician should turn to the section of his output that is entitled "FINANCING OF CAPITAL FUND OF JURISDICTION" and look at Sections 1 and 2. Section 1 reads "GENERAL OBLIGATION BONDS IN EFFECT." Listed here are all the General Obligation Bonds that have been passed in his jurisdiction during all previous cycles. On the right hand side, entitled "PAYMENT DUE IN CYCLE", he can see the principal and interest that must be paid this cycle, and the total amount due for a given bond. At the bottom of the column is the grand total for the cycle. This total is the payment that the jurisdiction must make. The last item listed under Section 2 is "TOTAL DEBT RETIREMENT FUNDS AVAILABLE FOR CYCLE" (Before Transfers from the General Fund, if any). The dollar amount listed is how much money is available right now without transferring any money from the Operating Budget.

Instructions: Take the "TOTAL DEBT RETIREMENT FUNDS AVAILABLE FOR CYCLE" and subtract the total payment due this cycle.

Example:

Total Debt Retirement Funds Available for Cycle 2	=	2106106
— General Obligation Bonds Payment Due	=	2011142
Surplus or Deficit (+) (-)	=	94,864 (+)

```
| PETRC-APEX --  9/ 9/71                 -- FCLITICIANS, JURISDICTION  1 --                          CYCLE  1,  PAGE  84
.  PRINCIPLES OF AIR POLLUTICN CONTROL                                                             TEAM   1

                                           FINANCING OF CAPITAL FUND OF JURISDICTION 1

1. GENERAL OBLIGATION BCNDS IN EFFECT --

              PRINCIPAL      INTEREST   CYCLES          UNDERPAYMENT                PAYMENT   DUE  IN   CYCLE  2
   NUM       CUTSTANCING       RATE     TO RUN           IN CYCLE  1            PRINCIPAL        INTEREST          TCTAL

     2     $  3455557.        1.5C        1C           $          0.       $    345600.   $     51840.   $    397440.
     3     $  3267916.        1.75        12           $          0.       $    272326.   $     57189.   $    329515.
     4     $  1481249.        3.5C        16           $          0.       $     92578.   $     51844.   $    144422.
     5     $  3197724.        2.75        22           $          0.       $    145351.   $     87937.   $    233288.
     6     $  2992457.        5.00        20           $          C.       $    149625.   $    149625.   $    29925C.
     7     $  3457823.        5.CC        23           $          0.       $    150340.   $    172891.   $    323231.
     8     $  1799999.        3.00        16           $          C.       $    112500.   $     54000.   $    166500.
   102     $  150C00C.        4.50        30           $          0.       $     5000C.   $     67500.   $    117500.

                                                                                                          $   2011142.
   TOTAL   $ 21153184.

2. DEBT RETIREMENT

   DEBT RETIREMENT MILLAGES IN EFFECT -- THROUGH CYCLE

      NC.      MILLS      1       2       3       4       5       6      REVENUES -- CYCLE  1     REVENUES -- CYCLE  2

       1     4.50         *       *       *       *       *                   $  1985846.              $  2039531.

   TOTAL                4.50    4.5C    4.5C    4.50    4.50    0.0            $  1985846.              $  2039531.

   TRANSFERS FRCM GENERAL FUNC, CYCLE  1                                      $   107000.

   SURPLUS CARRIEC FRCM CYCLE  0                                              $         C.

   TCTAL FUNC BEFORE CYCLE  1 PAYMENTS                                        $  2092846.

   TCTAL G.C. BCNC PAYMENTS MACE IN CYCLE  1                                  $  2C30039.

   SURPLUS CARRIED TC CYCLE  2 + 6.00 PERCENT INTEREST                                                 $    66575.

   TCTAL CEBT RETIREMENT FUNDS AVAILABLE FOR CYCLE  2                                                  $  2106106.
          (BEFCRE TRANSFERS FRCM CENERAL FUNC, IF ANY)
```

If the total is zero or positive this means that there are enough funds in the Debt Retirement Fund to cover at least this year's expenditures. Any surplus will be carried over, with 6% interest, for the next cycle's use.

If the total is negative there are two options available to the Politician. First, he can decide to transfer the amount needed to cover the deficit directly from his Operating Budget. If this is the option desired, go directly to Part IV - The Operating Budget - and under "P" list the amount of money that is to be transferred to Debt Retirement.

The second option involves submitting a special debt retirement referendum to the voters. The Politician will circulate this referendum among the other players explaining why the special debt retirement millage is needed. Each player will then either approve or disapprove the special millage. The more players approving this special millage, the better the chance of its passage. Debt Retirement Millages are usually short term, since long term taxes are often voted down by the people in the community. Promotional expenditures may be made to help the passage of the special millage. If any promotional expenditures are to be made, Item K of the Operating Budget should show the amount of money spent. The Politicians have the option of resubmitting this referendum one more time if it is voted down the first time. The referendum is put back on the ballot at a reduced rate of 15% of the original millage rate. This occurs in the computer in the same cycle if the issue is to be resubmitted to the voters. If the Special Debt Retirement Millage is defeated and not enough money is available in your Debt Retirement Fund to meet this cycle's payment (total is negative), an underpayment penalty will be added to the payment due next cycle.

Instructions: Fill in column 1 with the number of years the Special Debt Retirement Millage is to run. Enter the millage rate in column 2. Enter promotion expenditures, if any, in column 3. Check column 4 if you want the referendum to be resubmitted to the voters. Then take the opinion poll of as many players in the game as possible.

Example:

Special Debt Retirement Millage

Number of Years to Run	Millage Rate	Promotion Expenditure (if any)	If voted down, should it be resubmitted.
3	*3.7*	*$5,000*	*yes*

The form for polling the gamed players is found in Section V of the Worksheet.

V. In the case of all funding requests submitted to the voters, including General Obligation Bonds, Special Millages and raises in the Local Limit, the opinion of the gamed players is submitted to the Voter Response Model. As many players as possible should record their opinions on the form in Section V.

Instructions: In column 1 state whether the issue is a Special Millage, Bond, or raise in the Local Limit. In column 2 enter the bond or millage number, if appropriate. In column 3, jot down the purpose of the funding request (this entry is optional, but useful for getting opinions quickly). Finally, each player should record a YES or a NO vote in the column corresponding to his role.

Bond, Millage or Raise in Local Limit	Number (if Bond or Mill)	Purpose (if Appropriate)	Developers (7)							Industrialist (7)							Planners			Pol.		APCO
			1	2	3	4	5	6	7	1	2	3	4	5	6	7	Cty	Co.	Reg	Cty	Co.	

SECTION 5. SAMPLE POLITICIAN WORKSHEET

Preface

After the Elite Opinion Poll is completed, it is recommended that the Debt Retirement Fund be completed next. Afterwards, the Operating Budget and the Capital Budget should be done in whatever order the Politician feels most comfortable. This worksheet is only a guideline and can be modified if the Politician wishes to vary his approach.

POLITICIAN'S WORKSHEET

I. ELITE OPINION POLL

Cycle Number _____

County Pol. Suburb		County Pol. Twn. 1		County Pol. Twn. 2		Central City Pol. at Large		County Pol. at Large	
ISSUE NO.	ALTER	ISSUE NO.	ALTER	ISSUE NO.	ALTER	ISSUE NO.	ALTER	ISSUE NO.	ALTER

Central City Politician ( ) Cycle Number ______

County Politician ( )

II. OPERATING BUDGET

A. Estimation of Revenue Generation through Increases in the Millage

1. Item "F" of "Operating Budget Revenue Generation" __________
2. Divide Line 1 by 1000 for 1 mill increase __________
3. Multiply Line 2 by millage increase x __________
4. Expected increase in revenues __________

B. Change in Operating Millage

Change the Operating Millage		Total New Millage Rate*
Yes	No	

C. Raise Local Limit

Number of Years to Run*	Millage Increase*	Promotion Expenditures* (if any)	If voted down, should it be resubmitted*	
			Yes	No

This requires a public referendum. You need to get the opinions of as many players in the room as is possible. The form for polling the gamed players is found in Section V of the Worksheet.

D. Special Programs

New Special Program Number*	Location*	Method of Funding		Cost per Year	Is Required Capital Project in Existence?*
		Operating Budget	Special Millage*		

Total Cost of Special Programs $________

E. Special Millages

Special Millage	No. of Years Special Millage Runs*	No. of Mills*	Promotional Expenditures* (if any)	If voted down, should it be resubmitted?*	
				Yes	No
1					
2					
3					
4					
5					

This requires a separate public referendum. You need to get the opinions of as many players in the room as is possible. The form for polling the gamed players is found in Section V of the Worksheet.

F. Cash Transfers (to other players)

Player*	Amount*	Reason

G. Change in Operating Expenditures

1. City Change in Operating Expenditures

	Category:		% Total Revenue*	OR	$ Amount*
(A)	Legislative and Executive		XXXXXXXX		
(B)	Planning				
(C)	Financial				
(D)	Judicial				
(E)	Fire and Police				
(F)	Parks & Recreation--salaries & maintenance				
(G)	Water & Sewers--salaries & maintenance				
(H)	Refuse Collection				
(I)	Streets--salaries & maintenance				
(J)	Employee Benefits				
(K)	Public Relations (Promotion Expenditures)				
	(1) Special Debt Retirement Millage				
	(2) General Obligation Bonds	+			
	(3) Raising Local Operating Millage Limit	+			
	(4) Special Millages	+			
	Total Promotional Expenditures				
(L)	Library				
(M)	Check Payments to Other Players (Cash Transfers to other players)		XXXXXXXX		
(N)	Special Programs				
	(1) New Special Programs Annual Cost				
	(2) Continuing Special Programs on Listing (those with asterisks)	+			
	Total Cost of Special Programs		XXXXXXXX		
(O)	Transfer to Capital Fund		XXXXXXXX		
(P)	Transfer to Debt Retirement		XXXXXXXX		

XXXXXXXX - percentages do not apply to those categories. Please enter dollar amount only.

2. County Change in Operating Expenditures

	Category:		% Total Revenue*	OR	$ Amount
(A)	Legislative & Administrative (i.e., Planning, Financial, etc.)		XXXXXXXX		
(B)	Judicial				
(C)	Public Safety				
(D)	Parks Authority				
(E)	Public Works Maintenance				
(F)	Public Health				
(G)	APCO (Budget Worksheet)		XXXXXXXX		
(H)	Welfare and Hospitalization				
(I)	Road and Street Maintenance				
(J)	Employee Benefits				
(K)	Public Relations (Promotional Expenditures)				
	(1) Special Debt Retirement Millage				
	(2) General Obligation Bonds	+			
	(3) Raising Local Operating Millage Limit	+			
	(4) Special Millages	+			
	Total Promotional Expenditures				
(L)	Library				
(M)	Check Payments to other Players (Cash Transfers to other Players)		XXXXXXXX		
(N)	Special Programs				
	(1) New Special Programs Annual Cost				
	(2) Continuing Special Programs on Listing (those with astericks)	+			
	Total Cost of Special Programs		XXXXXXXX		
(O)	Transfer to Capital Fund		XXXXXXXX		
(P)	Transfer to Debt Retirement		XXXXXXXX		
(Q)	Transfer to Roads Capital Fund		20% of Road Commission Revenues		

XXXXXXXX - percentages do not apply to those categories. Please enter dollar amount only.

III. CAPITAL BUDGET

A. Revenue Bonds

Revenue Bond	Budget Category*	Cycle for Revenue Bond to Run*	Dollars*
1			
2			
3			
4			
5			
6			
7			
8			
9			

Total for all Revenue Bonds $__________

B. General Obligation Bonds

General Obligation Bond	Budget Category*	Cycles to Run*	Amount*	Promotion Expenditure (if any)*	Re-Submit*
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					

Total for All General Obligation Bonds $__________

BE SURE TO LIST ALL PROJECTS ON NEXT PAGE!

Each General Obligation Bond requires a separate public referendum. You need to get the opinions of as many players in the room as is possible. The form for polling the gamed players is found in Section V of the Worksheet.

C. Capital Improvement Projects

Project No.*	Location*	Method of Funding			Total Cost*	Cycles to Run	Annual Cost
		Capital Budget	Revenue Bond*	G.O. Bond*			

Total Cost of all New Projects $ ____________

Total Annual Cost $ ____________

D. Land Purchases

Seller*	AA*	Vac/ Dev*	Zone Cat.*	No. of Units* or	No. of Acres*	Price/Acre Price/Unit*	Total Price

Total Land Purchases $ ____________________

E. Cash Flow of Capital Budget

1. Revenue Generation for Capital Budget

(a) Balance of capital fund carried forward (Item 10 of Output) ____________

(b) New Bond Sales

Total for all new Revenue Bonds ____________

Total for all new G.O. bonds +____________

Sum of new bonds ____________

Total Bond Sales + ____________

(c) New Transfers from General Fund ________
Capital Roads Fund (Co. only) ________
Total Transfers from General Fund ________ ________

(d) New Special Grants
State Money ________
Federal Money + ________
Sum of Outside Funds ________ ________

(e) Total Capital Improvement Fund ________

2. Expenditures for Capital Budget

(a) Total Costs of all new projects ________
(b) Total Annual Cost of new projects − ________

Encumbered Funds for new projects ________ ________

(c) Sum of Annual Costs on printout[1] ________
(d) Total Annual Costs of new projects + ________
(e) Total Disbursement (other than land) ________
(f) Encumbered Funds for projects not yet completed (item 11 from printout) ________
(g) Sum of Annual Cost on printout[1] − ________

SUB TOTAL ________ + ________

(h) Encumbered Funds for all projects ________
(i) Total Capital Improvement Fund ________
(j) Total land purchases this cycle − ________

SUB TOTAL ________

(k) Total Disbursements (other than land) − ________
Balance of Capital Funds for next cycle ________
x .06

(l) 6% Interest on Balance ________
(m) Total carried to next cycle ________
(n) Encumbered Fund for all old and new projects ________
(o) Unencumbered Balance ________

---

1. Note: Items (c) and (g) may be determined by totaling the Multi-year Projects from the Capital Projects Printout (those marked by asterisks).

IV. DEBT RETIREMENT FUND

A. "Total Debt Retirement Funds Available for Cycle" ____________

B. Total payment due for all General Obligation Bonds - ____________

Total ____________

Special Debt Retirement Millage

Number of Years to Run*	Millage Rate*	Promotion Expenditures if any*	If voted down, should it be resubmitted?*

Each Special Debt Retirement Millage requires a separate public referendum. You need to get the opinions of as many players in the room as is possible. The form for polling the gamed players is found in Section V of the Worksheet.

V. FORM FOR POLLING PLAYER OPINION

Bond, Millage or Raise in Local Limit	Number (if Bond or Mill	Purpose (if appropriate)	Developers (7)							Industrialists (7)							
			1	2	3	4	5	6	7	1	2	3	4	5	6	7	C

l

of	Developers (7)							Industrialists (7)							Planners			Pol.		APCO
te)	1	2	3	4	5	6	7	1	2	3	4	5	6	7	Cty	Co.	Reg	Cty	Co.	

```
METRC-APEX --  9/ 9/71                          -- POLITICIANS, JURISDICTION  1 --
 PRINCIPLES OF AIR POLLUTION CONTROL

                                                MISCELLANEOUS NOTES FROM CYCLE  1

REFERENDUM       TYPE OF ACTION REQUESTED                    C LIMITING ACTION TAKEN
  NUMBER
------------------------------------------------------------------------------------
A 102            BOND ISSUE   $    1500000.

                                              REAL  ESTATE  TRANSACTIONS  BY  POLITIC

                              S A L E S
     ------------------------------------------------------//-----------------
     (UP FOR SALE ARE)  (AT)         /                     //  (BID FOR ARE)
AA    X UNITS    OF   B $/U OR   TO  /  SOLD      TOTAL    //   X UNITS   OF
     OR ACRES  TYPE     $/ACRE       /    X       PRICE    //  OR ACRES  TYPE
D [illegible]
                                                           //      E
TOTALS

         NOTE -- [illegible]
```

A A special number should be assigned to each bond issue and/or special millage requested by a politician, by your role director.

C [illegible]

B [illegible] per unit for developed residential property, [illegible] this property.

D A simple majority is needed to pass a referendum.

```
TICIANS, JURISDICTION  1 --                              CYCLE  1,  PAGE  79
                                                         TEAM    1

NEOUS NOTES FROM CYCLE  1

    C LIMITING ACTION TAKEN                         V O T E R    R E S P O N S E
                                                  TURNOUT   PC FAVORING   RESULT
--------------------------------------------------------------------------------
                                                  25723.   D 65.9          PASS

TE  TRANSACTIONS  BY  POLITICIANS, JUR. 1

                                        P U R C H A S E S
---------//---------------------------------------------------------------------
         //  (BID FOR ARE)        (AT)         /
OTAL     //    X UNITS    OF      $/U OR  FROM /  BOUGHT     DEMCL.       TOTAL
RICE     //  OR ACRES   TYPE      $/ACRE       /    X         COST        COST

         //     [illegible]E[illegible]                        [illegible]
                          F G
[illegible]                                                    [illegible] H

[illegible]
```

E This code[illegible]
vacant [illegible]
and agg[illegible]

F [illegible]
and [illegible]
[illegible]

C Politicians may request that a bond issue or special millage be resubmitted to the voters in the same cycle if it is voted down the first time, [illegible] [illegible] [illegible] [illegible] passed ("no limiting action") [illegible] the bond passed the first time around.

[illegible]

79

```
CLE  1,  PAGE  79
AM   1

 R E S P O N S E
FAVORING   RESULT
-----------------
 65.9       PASS


-----------------

DEMCL.     TOTAL
 COST      COST
```

E This code indicates that small parcels of both vacant and developed land were purchased and aggregated (by the computer).

V- vacant
D- developed
R- single residential
M- multiple residential
C- Commercial
I- industrial
A- agricultural
B- bureaucratic

H

F Because different types of land were bought and assembled in this transaction, no single price per unit or acre was appropriate here. ("Total Cost" figure tells the story.)

G Purchase was from general market (simulated)

H This amount is deducted from Capital Budget, Item 7. (See page 8-11)

```
METRO-APEX --  9/ 9/71                    -- POLITICIANS, JURISDICTION  1 --
 PRINCIPLES OF AIR POLLUTION CONTROL

                              A CURRENT  PROPERTY  HOLDINGS  AFTER  CYCLE  1

                 (DEVELOPED RESIDENTIAL IN UNITS, ALL OTHER VALUES ARE IN ACR

             //         R E S I D E N T I A L          //        N O N - R
             //----------------------------------------//------------------
             //      S I N G L E      / M U L T I P L E //     COMMERCIAL
             //-----------------------/----------------//------------------
AA    STATUS //     R-1     R-2     R-3/   M-1      M-2 //    LOCAL   REGIONA
-------------//----------------------------------------//------------------

 1  VACANT   //  B 3.00                    0.0          /    0.0         C
                PUBLIC BUILDINGS, PARKS, ETC. =  115.0 ACRES,  STREETS AND RI
-----------------------------------------------------------------------------

 2  VACANT   //    0.30                    0.0          /    0.0
                PUBLIC BUILDINGS, PARKS, ETC. =  163.0 ACRES,  STREETS AND RI
-----------------------------------------------------------------------------

 3  VACANT   //    2.69                    0.0          /    0.0
                PUBLIC BUILDINGS, PARKS, ETC. =  272.0 ACRES,  STREETS AND RI
-----------------------------------------------------------------------------

 4  VACANT   //    1.60                    0.0          /    0.0
                PUBLIC BUILDINGS, PARKS, ETC. =   38.5 ACRES,  STREETS AND RI
-----------------------------------------------------------------------------

 5  VACANT   //    3.70                    0.0          /    0.0
                PUBLIC BUILDINGS, PARKS, ETC. =  306.5 ACRES,  STREETS AND RI
-----------------------------------------------------------------------------

 6  VACANT   //    6.00                    0.0          /    0.0
                PUBLIC BUILDINGS, PARKS, ETC. =  113.0 ACRES,  STREETS AND RI
-----------------------------------------------------------------------------

 7  VACANT   //   20.00                    0.0          /    0.0
                PUBLIC BUILDINGS, PARKS, ETC. =  279.0 ACRES,  STREETS AND RI
-----------------------------------------------------------------------------
JURISDICTICN  1 --                                 CYCLE  1,  PAGE  8C
                                                   TEAM    1

CINGS   AFTER   CYCLE   1

OTHER VALUES ARE IN ACRES)

 //           N O N - R E S I D E N T I A L
--//------------------------------------------------------------------
E //      CCMMERCIAL        /     INDUSTRIAL      / OFFICE / AGRICULT
--//-----------------------/--------------------/---------/----------
 //     LOCAL   REGIONAL  /  LOCAL        EXOG.  /   EXOG./
--//------------------------------------------------------------------

  /      0.0          C        0.0                      0.0        0.0
ACRES,  STREETS AND RIGHT-OF-WAY =  211.1 ACRES
----------------------------------------------------------------------

  /      0.0                   0.0                      0.0        0.0
ACRES,  STREETS AND RIGHT-OF-WAY =  345.1 ACRES
----------------------------------------------------------------------

  /      0.0                   0.0                      0.0        0.0
ACRES,  STREETS AND RIGHT-OF-WAY =  224.5 ACRES
----------------------------------------------------------------------

  /      0.0                   0.0                      0.0        0.0
ACRES,  STREETS AND RIGHT-OF-WAY =  116.0 ACRES
----------------------------------------------------------------------

  /      0.0                   0.0                      0.0        0.0
ACRES,  STREETS AND RIGHT-OF-WAY =  296.9 ACRES
----------------------------------------------------------------------

  /      0.0                   0.0                      0.0        0.0
ACRES,  STREETS AND RIGHT-CF-WAY =  288.4 ACRES
----------------------------------------------------------------------

  /      0.0                   0.0                      0.0        0.0
ACRES,  STREETS AND RIGHT-CF-WAY =  231.7 ACRES
----------------------------------------------------------------------
```

A This table inc
sales, develop
cycle 1. "Vaca
be used for
which requir
not add su
in a particu
either buy th
purchased a
higher price
put into f

B These 3.00 va
"residential s
developed R-

C Right-of-Way
needed for ut
etc.

(This table continue

```
CLE  1,  PAGE  8C
AM   1

-----------------
OFFICE / AGRICULT
-------/---------
  EXOG./
-----------------

   0.0      0.0
S
-----------------

   0.0      0.0
S
-----------------

   0.0      0.0
S
-----------------

   0.0      0.0
S
-----------------

   0.0      0.0
S
-----------------

   0.0      0.0
S
-----------------

   0.0      0.0
S
-----------------
```

A This table includes all changes (purchases, sales, development) which occurred in cycle 1. "Vacant" acreage shown here may be used for capital improvement projects which require land. If the public does not add sufficient land for a project in a particular Analysis Area, the city must either buy the land or let the land be purchased automatically — perhaps at a higher price — when the project is put into effect.

B These 3.00 vacant acres are zoned simply "residential single"; the land may be developed R-1, R-2, or R-3.

C Right-of-Way includes sidewalks, land needed for utility lines, shoulders on roads, etc.

(This table continued on page 8-5)

POLITICIANS JURISDICTION 1 CURRENT PROPERTY HOLDINGS AFTER CYCLE 1 (Developed residenti

(This table continued from page 8-3)

```
 8                    PUBLIC BUILDINGS, PARKS, ETC. =  159.0 ACRES,  STREETS AND
--------------------------------------------------------------------------------

 9  VACANT    //    8.90                      0.0           /     0.0
                      PUBLIC BUILDINGS, PARKS, ETC. =  274.0 ACRES,  STREETS AND
--------------------------------------------------------------------------------

10  VACANT    //   31.70                      0.0           /     0.0
                      PUBLIC BUILDINGS, PARKS, ETC. =  317.0 ACRES,  STREETS AND
--------------------------------------------------------------------------------

11  VACANT    //    8.00                      0.0           /     0.0
                      PUBLIC BUILDINGS, PARKS, ETC. =  402.0 ACRES,  STREETS AND
--------------------------------------------------------------------------------

12  VACANT    //    3.70                      0.0           /     0.0
                      PUBLIC BUILDINGS, PARKS, ETC. =  100.0 ACRES,  STREETS AND
--------------------------------------------------------------------------------

13  VACANT    //    6.40                      0.0           /     0.0
                      PUBLIC BUILDINGS, PARKS, ETC. =   55.0 ACRES,  STREETS AND
--------------------------------------------------------------------------------
```

DINGS AFTER CYCLE 1 (Developed residential in units, All other values are in acres)

```
ETC. =  159.0 ACRES,  STPEETS ANC RIGHT-OF-WAY =  280.0 ACRES
--------------------------------------------------------------------------------------------------

 C.0          /     0.0               0.C                C.0      0.C
ETC. =  274.0 ACRES,  STREETS AND RIGHT-OF-WAY =  138.1 ACRES
--------------------------------------------------------------------------------------------------

 0.0          /     0.0               0.0                C.0      0.C
ETC. =  317.0 ACRES,  STREETS AND RIGHT-OF-WAY =  429.6 ACRES
--------------------------------------------------------------------------------------------------

 0.0          /     C.0               0.C                C.C      0.C
ETC. =  402.C ACRES,  STREETS AND RIGHT-CF-WAY =  445.6 ACRES
--------------------------------------------------------------------------------------------------

 0.0          /     C.0               0.C                C.0      0.C
ETC. =  100.C ACRES,  STREETS AND RIGHT-CF-WAY =  605.6 ACRES
--------------------------------------------------------------------------------------------------

 0.0          /     C.0               C.C                C.0      0.C
ETC. =   55.C ACRES,  STREETS AND RIGHT-CF-WAY =  563.1 ACRES
--------------------------------------------------------------------------------------------------
```

(This table continued from page 8-7)

L These columns should be compared by the Politician to evaluate the adequacy of his current expenditures. The standard per capita may be expected to rise each year to offset the cost of inflation; when the per capita lags too far behind, problems may be expected to arise in the city.

● City tax base to which millage is applied to general operating revenue plus these seven items equals total general (operating) fund of 9312265.

```
METRO-APEX --  S/ 9/71                         -- POLITICIANS, JURISDICTION  1 --
 PRINCIPLES CF AIR PCLLUTICN CCNTRCL

                                                  CPERATING BUCGET IN EFFECT DURING CYCLF

1. TAX REVENUE --- TCTAL ASSESSEC VALUE, ENC OF CYCLE  C      $  612915456.
                                                                   X 0.72C (ST
                                                            = $  441299200. (TC
                                                                   X 13.0C (TC
                                                            = TOTAL PROPERTY TA

2. CTHER REVENUE
 C A. CTHER AGENCIES (STATE, FEDERAL) B                                           F
   B. LICENSE FEES AND FINES
   C. CTHER NON-PROPERTY TAX REVENUE D
 E D. SPECIAL GRANTS
   E. CHECK DEPOSITS FROM CTHER PLAYERS
   F. LANC SALES
   G. DEFICIT OR SURPLUS FRCM CYCLE  0 (WITH 6 PERCENT INTEREST)

3. TCTAL GENERAL (OPERATING) FUND
   ------------------------------------------------------------------------------------

4. OPERATING EXPENDITURES                              PERCENT OF 3. F  PER CAPITA
   A. LEGISLATIVE, EXECUTIVE                                 2.00
   B. PLANNING                                               1.50      $    C.98
   C. FINANCIAL                                              5.00
   D. JUDICIAL                                               3.0C           1.96
   E. FIRE, PCLICE                                          29.00          18.93
   F. PARKS, RECREATION                                     13.0C           8.49
   G. WATER, SEWERS                                         13.50           8.81
   H. REFUSE COLLECTION                                      3.50           2.28
   I. ROAD & STREET MAINTENANCE                             11.5C           7.51
   J. EMPLCYEE BENEFITS                                      8.00
   K. PUBLIC RELATIONS                                       0.26
   L. LIBRARY                                                2.0C           1.31 L
   M. CHECK PAYMENTS TC OTHER PLAYERS                        0.0
 H N. SPECIAL PROGRAMS (LISTING NEXT PAGE)                   1.13
   C. TRANSFER TC CAPITAL FUND                               5.04
   P. TRANSFER TC DEBT RETIREMENT H                          1.15

5. TCTAL CPERATING EXPENDITURES                            100.57 K
   ------------------------------------------------------------------------------------

6. NET SURPLUS OR DEFICIT TC BE CARRIED FCRWARD TC CYCLE  2
```

1 tax mill = $1 tax on every $1,000 equalized value

B (shared revenues)

A This is the tax base for the city to which tax millage is applied to generate operating revenue. (See next page, F, for this year.)

C (business

D (primaril

E (from y

```
TICIANS, JURISDICTION  1 --                          CYCLE  1,  PAGE  81
                                                     TEAM    1

 BUDGET IN EFFECT DURING CYCLE  1

CYCLE  0      $  612915456.
                     X 0.720 (STATE EQUALIZATION FACTOR) A
ualized    = $  441299200. (TOTAL EQUALIZED VALUE)
                     X 13.00 (TOTAL OPERATING MILLS)
           = TOTAL PROPERTY TAX FOR OPERATING BUDGET       $  5736885. G

l revenues)               F PERCENTAGE OF 3.
                              18.37                        $  1710380.
                               7.14                            665000.
                              12.89                           1200000.
                               0.0                                  0.
                               0.0                                  0.
                               0.0                                  0.
RCENT INTEREST)                0.0                                  0.

                                                           $  9312265.
---------------------------------------------------------------------

 PERCENT OF 3. F   PER CAPITA I     STANDARD PER CAPITA J         AMOUNT  H Funds
    3.00                                                   $   279368.     budget
    1.50         $    0.98                1.00                 139684.     budgete
    5.00                                                       465613.
    3.00              1.96                2.01                 279368.
   29.00             18.93               19.43                2700556.
   13.00              8.49                8.71                1210594.
   13.50              8.81                9.04                1257155.
    3.50              2.28                2.34                 325929.
   11.50              7.51                7.70                1070910.
    8.00                                                       744981.
    0.26                                                        24312.
    2.00              1.31 L              1.34 L               186245.
    0.0                                                             0.
    1.13                                                       105000.
    5.04                                                       469000.  K Politici
    1.15                                                       107000.
                                                                         than w
  100.57 K                                                 $  9365714.
----------------------------------------------------------------------   budget,

TC CYCLE  2                                                $   -53449. K
```

ich tax
ating
s year.)

C (business, traffic, zoning, etc.)

D (primarily sales of public services)

E (from federal or state agencies)

To determ
money a
see line
budget

F §1 PAGE 81

$ 5736885. **G** —— This

$ 1710380. ——
665000. ——
1200000. ——
0. ——
0. —— plus these
0. ——
0. ——

(See page 8-6 at left)

$ 9312265. —— equals this.

===============

AMOUNT **H** Funds may be transferred from Operating Budget to Capital and Debt Retirement Budgets but not vice versa.

$ 279368.
139684.
465613.
279368.
2700556.
1213594.
1257155.
325929.
1079910.
744921.
24312.
186245.
0.
175000.
460000.
100000.

I (within this jurisdiction)

J (represents U.S. average)

K Politicians in Cycle 1 spent more money than was available in the Operating Budget. Hence the deficit.

$ 9365714.

$ -53449. **K**

To determine the amount of Operating Budget money actually available for use in Cycle 2, see line G on the next page under "Operating Budget Revenue Generation."

rvices)

ncies)

(This table continued on page 8-6 at left)

(This table continued from page 8-9)

G Compare to F (pg. 8-9) to see how much additional millage may be levied without going to the voters in a special millage referendum. (At this time the City may raise taxes 2 mills without going to the voters.

H This is the key to revenue generation for the next cycle.

I Compare this to equalized value at top of preceding page to see the City's growth which occurred during Cycle 1.

K If new millage (special or normal) is requested by the City in Cycle 2, these figures will be increased.

L This is the amount of money available for Operating Budget during Cycle 2.

```
METRO-APEX --  0/ 0/71                          -- POLITICIANS, JURISDICTION  1 --
 PRINCIPLES OF AIR POLLUTION CONTROL

                                                 SPECIAL PROGRAMS IN EFFECT IN CYCLE  1

                              A REQUIRED
PROG         LOCATED            CAPITAL
NUM.           IN               PROJECT                               TITLE
----------------------------------------------------------------------------------------

  1          AA   1               88              SUMMER RECREATION PROGRAM FOR POOR CHI
  1          AA   3               88              SUMMER RECREATION PROGRAM FOR POOR CHI
  1          AA   4               88              SUMMER RECREATION PROGRAM FOR POOR CHI
  2          AA   1                               PARKWAY TREE-PLANTING PROGRAM
  2          AA   6                               PARKWAY TREE-PLANTING PROGRAM
  2          AA   7                               PARKWAY TREE-PLANTING PROGRAM
              C

                                          OPERATING BUDGET REVENUE GENERATION

MILLAGE LEVELS AND LIMITS (WITHOUT FURTHER VOTE)

F A. STATE LIMIT ON NORMAL OPERATING MILLAGE = 18.00

  B. LOCAL LIMIT ON NORMAL OPERATING MILLAGE = 15.00 F

G C. NORMAL OPERATING MILLAGE REQUESTED      = 13.00 (IF UNCHANGED FROM CURREN

  D. SPECIAL OPERATING MILLAGES IN EFFECT -- THROUGH CYCLE

      NUMBER       MILLS       1        2        3        4        5        6

                THERE ARE NONE IN EFFECT


  E. TOTAL OPERATING MILLAGES EFFECTIVE CYCLE  2 BEFORE ADDING NEW MILLAGE = 1

H F. TOTAL EQUALIZED VALUE, END OF CYCLE  1 =                   I $ 453229312.

  G. TOTAL PROPERTY TAX REVENUE FOR OPERATING BUDGET IN CYCLE  2 = $ 5891979.

                                                                 $ 1765111.
                                                               K $  756104.
                                                                 $ 1364398.
                                                                 $  -53449.

                                                               L = $ 9724143.
```

A Some special programs require construction of capital facilities to house them. (See Special Program list.)

```
GRAMS, JURISDICTION  1 --                              CYCLE  1,  PAGE  82
                                                       TEAM   1
OGRAMS IN EFFECT IN CYCLE  1

                                     B FUNDED         CYCLES          ANNUAL
     TITLE                             BY MILL        TO RUN           COST
----------------------------------------------------------------------------
REATION PROGRAM FOR POOR CHILDREN                        3 *        $  20000.
REATION PROGRAM FOR POOR CHILDREN                        3 *D       $  20000.
REATION PROGRAM FOR POOR CHILDREN                        3 *        $  20000.
EE-PLANTING PROGRAM                                      3 *        $  15000.
EE-PLANTING PROGRAM                                      3 *        $  15000.
FE-PLANTING PROGRAM                                      3 *E       $  15000.


T REVENUE GENERATION


.00
.00 F
.00 (IF UNCHANGED FROM CURRENT CYCLE)
GH CYCLE
    4       5       6              REVENUES -- CYCLE  2


EFORE ADDING NEW MILLAGE = 13.00 J (see below)
              I $ 453229312.
ET IN CYCLE  2 = $ 5891979. (= E. X F.)

                 $ 1765111. (STATE  FEDERAL FUNDS)
              K  $   756104. (LICENSE FEES AND FINES)
                 $ 1364398. (OTHER NON-PROPERTY TAX REVENUE)
                 $   -53449. (SURPLUS OR DEFICIT FROM CYCLE  1)

              L= $ 9724143. TOTAL OPERATING REVENUES FOR CYCLE  2
                            (PROJECTED WITHOUT TAX RATE CHANGE)
```

uction)
(See Special

B Some Sp
a special
would ap

C (See Sp
area Leng

D Indicates

E This colum
program
cycle (No

F will run
millage,
to year, la
Charter ce
to special
to approv

"Total ap
normal
millages

```
PAGE  82

  ANNUAL
    COST
---------

$  20000.
$  20000.
$  20000.
$  15000.
$  15000.
$  15000.

1)

LE  2
GE)
```

B Some Special Programs may be financed by a special millage, the number of which would appear here.

C (See Special Program List for the total area benefitted by each program.)

D Indicates multi-year program

E This column shows the number of years the program will run including the present cycle (No. 1). All the programs shown here **F** will run through Cycle 3. Normal operating millage, which the city may alter from year to year, is subject to both state and local Charter ceilings. These limitations do not apply to special millage which instead is subject to approval by voters in a local referendum.

"Total operating millages" are the sum of normal millage and all special operating millages approved by voter referenda.

● (This table continued on page 8-8 at left)

(This table continued from page 8-11)

I Indicates multi-year projects

J This includes automatic purchase of land from the market when the city does not own enough land required by the project.

K Money remaining in reserve during a cycle earns interest.

L This figure will appear as Item 1 of the Capital budget in next cycle's output and is available to cover that cycle's Project Costs.

M This is the total amount encumbered for all multi-year projects (annual cost x years to run).

N If no more funds are added to the Capital Budget, the present multi-year projects will deplete present funds to this amount by the time those projects are completed.

```
METRC-APEX --  9/ 9/71                                  -- COUNTY BOARD OF SUPERVISORS --
 PRINCIPLES OF AIR PCLLUTICN CCNTRCL

                                                          CAPITAL BUDGET FCR JURISDICTION

A1. BALANCE CF CAPITAL FUNC FRCM CYCLE  0                     $   300000.A
  2. NEW BOND SALESB                                          B$ 1578000.
C3. TRANSFERS FRCM GENERAL FUNC                               C$  797209.
  4. SPECIAL GRANTSD                                          D$   20000.
                                                              D-----------
  5. TOTAL CAPITAL IMPRCVEMENT FUNC, CYCLE  1————→= $ 2695208.
                                 THE FOLLCWING CAPITAL IMPROVEMENT PROJECTS WERE C
                                        (INCLUDES MULTI-YEAR PRCJECTS APPROVED IN P
FPRCJ  LCCATED ECPI    ACRES   BUDGET                          TITLE
 NUMB    IN    IMPACT  USED   CATEGCRY
-------------------------------------------------------------------------------------

       2  AA  16   AA           STREETS     RESURFACING CF SECCNDARY STREETS
       2  AA  29   AA           STREETS     RESURFACING CF SECCNDARY STREETS
       4  AA  23   AA           STREETS     WIDEN SECCNDARY STREET
       6  AA  24   AA           STREETS     CCNSTRUCT NEIGHBORHOOD STREETS
       6  AA  26   AA           STREETS     CCNSTRUCT NEIGHBORHOOD STREETS
       8  AA  22   WARD         STREETS     CCNSTRUCT PRIMARY STREET SEGMENT
       5  AA  27   WARD         STREETS     WIDEN PRIMARY THOROUGHFARE
       7  AA  15   AA           STREETS     CONSTRUCT SECONDARY STREET
     109  AA  29   CCUNTY       MISC.       AIRPCRT RUNWAY EXPANSICN - CCUNTY
      80  AA  17   WARD         MISC.       EXPANC ANC RENCVATE FIRE STATION
      40  AA  19   AA           SEWERS      CONSTRUCT NEW NEIGHBORHOOD SANITARY
      60  AA  19   AA     0.5   PARK,REC    DEVELCP ANC EQUIP TOT LOT
      51  AA  18   AA           WATER       EXPAND AREA WATER MAINS
      66  AA  18   WARD   5.0   PARK,REC    DEVELOP BALL FIELD
      93  AA  17   JUR    2.5   MISC.       BUILC NEW CCMMUNITY LIBRARY
      18  AA  25   AA     0.5   STREETS     PARKING LCT PAVING AND MARKING
      69  AA  28   AA           PARK,REC    REPLACE PLAYGROUND EQUIPMENT
      37  AA  25   AA           SEWERS      EXPAND STCRM SEWER CAPACITY
      60  AA  27   AA     0.5   PARK,REC    DEVELCP AND EQUIP TCT LCT
      71  AA  28   WARD         PARK,REC    REPLACE PICNIC FACILITIES
      87  AA  27   AA           MISC.       NEIGHBORHCOD CENTER RENCVATICN
      37  AA  16   AA           SEWERS      EXPAND STCRM SEWER CAPACITY
      18  AA  16   AA     0.5   STREETS     PARKING LCT PAVING AND MARKING
      60  AA  21   AA     0.5   PARK,REC    DEVELCP AND EQUIP TCT LCT
      69  AA  22   AA           PARK,REC    REPLACE PLAYGROUND EQUIPMENT
      71  AA  29   WARD         PARK,REC    REPLACE PICNIC FACILITIES
      87  AA  14   AA           MISC.       NEIGHBORHCOD CENTER RENCVATION
  6.————————————————————————————————————————————————————————→ TCTAL DISBURSEMEN

  7. TCTAL LAND PURCHASES IN CYCLE  1 $   226823.J

  8. BALANCE REMAINING IN CAPITAL FUNC——————————————→  = $ 1142384.  (LINE 5

  9. INTEREST ON BALANCE K                             K= $    68543.
```

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BOARD OF SUPERVISORS --                                      CYCLE  1,  PAGE  9C
                                                             TEAM    1

DGET FOR JURISDICTION  5

  300000. A
 1578000.
  797209.
   20000.
-----------

 2695208.

OVEMENT PROJECTS WERE CARRIED IN CYCLE  1
 PROJECTS APPROVED IN PREVIOUS CYCLES)
   TITLE                                    FUNDED   G CYCLES      H ANNUAL
                                            BY BOND    TO RUN         COST
---------------------------------------------------------------------------

CF SECONDARY STREETS                                   1             $    50000.
CF SECONDARY STREETS                                   1             $    50000.
ARY STREET                                             1             $    90000.
IGHBORHOOD STREETS                                     2       *     $    18000.
IGHBORHOOD STREETS                                     2       *     $    18000.
IMARY STREET SEGMENT                                   2       *     $   250000.
Y THOROUGHFARE                               110       2       *     $   150000.
CONDARY STREET                               110       2       *     $    88000.
AY EXPANSION - COUNTY                        111       3       *     $   167000.
ENOVATE FIRE STATION                         104       2       *     $    60000.
W NEIGHBORHOOD SANITARY SEWER                          1             $    60000.
EQUIP TOT LOT                                          1             $     8000.
WATER MAINS                                  104       3       *     $    67000.
 FIELD                                                 1             $    22000.
MMUNITY LIBRARY                              105       3   I   *     $    70000.
PAVING AND MARKING                           105       1             $     4000.
GROUND EQUIPMENT                                       1             $     5000.
 SEWER CAPACITY                                        1             $    50000.
EQUIP TOT LOT                                          1             $     5000.
IC FACILITIES                                105       1             $    10000.
 CENTER RENOVATION                           105       1             $     5000.
 SEWER CAPACITY                              105       1             $    50000.
PAVING AND MARKING                                     1             $     4000.
EQUIP TOT LOT                                          1             $     5000.
GROUND EQUIPMENT                                       1             $     5000.
IC FACILITIES                                          1             $    10000.
 CENTER RENOVATION                                     1             $     5000.
———> TOTAL DISBURSEMENTS (OTHER THAN LAND)  IN CYCLE  1 $ 1326000.


—> = $ 1142384.  (LINE 5 MINUS LINES 6 AND 7)
K = $    68543.
```

A When a bond is sold, its income enters the Capital budget in one lump sum; expenditures for multi-year projects will be extended over several years, leaving a cash reserve to carry over from year to year.

B (Inclu
(Revenu

C Transfers
be made
Capital Bu

D Special gra
time from
Federal an

E Capital B
benefitted
of locatio

F (From firs

G Shows nu
including

H Annual cos
budget eac
construction

● (This table cont

LE 1, PAGE 9C
M 1

enters the
m; expenditures
be extended
ash reserve
s.

LES PUN			**H** ANNUAL COST
		$	50000.
		$	50000.
		$	90000.
*		$	18000.
*		$	18000.
*		$	250000.
*		$	150000.
*		$	88000.
*		$	167000.
*		$	60000.
		$	60000.
		$	8000.
*		$	67000.
		$	22000.
*		$	70000.
		$	4000.
		$	5000.
		$	50000.
		$	5000.
		$	10000.
		$	5000.
		$	50000.
		$	4000.
		$	5000.
		$	5000.
		$	10000.
		$	5000.
F	1	$	1326000.

B (Includes both General Obligation and Revenue Bond money)

C Transfers from the Operating Budget may be made in any cycle to "beef up" the Capital Budget.

D Special grants may be requested at any time from the game operator who represents Federal and State agencies, etc.

E Capital Plant Index (see Glossary) shows area benefitted by the project (the specific area of location unless otherwise indicated).

F (From first column of Project List)

G Shows number of years to complete project including Cycle 1.)

H Annual cost will be deducted from Capital Budget each year that the project is under construction.

● (This table continued on page 8-10 at left)

(This table continued from page 8-13)

F Compare these two values to see whether additional debt retirement millage funds will be needed to meet the County's obligations. In the present case, sufficient funds are not available and no funds will be available in the future unless funds are transferred from the Operating Budget and/or raised through special debt retirement millage.

G Credit rating may go down if all bond payments are not made on time. Moreover, the interest rates which the County will have to pay, in order to sell their bonds, will go up.

H Because general obligation bonds are backed by the taxing power of the Community, the interest rate is lower than on higher risk revenue bonds.

```
METRO-APEX --  9/ 9/71                              -- POLITICIANS, JURISDICTION  1 --
 PRINCIPLES OF AIR POLLUTION CONTROL

                                                      FINANCING OF CAPITAL FUND OF JURISDICT

A 1. GENERAL OBLIGATION BONDS IN EFFECT --

                  PRINCIPAL          INTEREST B CYCLES          UNDERPAYMENT
     C NUM        OUTSTANDING          RATE     TO RUN           IN CYCLE  1           PRIN

         2     $  3455997.             1.50       10         $            0.       $   34
         3     $  3267916.             1.75       12         $            0.       $   27
         4     $  1481249.             3.50       16         $            0.       $
         5     $  3197724.             2.75       22         $            0.       $   14
         6     $  2992497.             5.00       20         $            0.       $   14
         7     $  3457823.             5.00       23         $            0.       $   1
         8     $  1799999.             3.00       16         $            0.       $   11
       102     $  1500000.             4.50       30         $            0.       $

     TOTAL     $ 21153184.

E 2. DEBT RETIREMENT

     DEBT RETIREMENT MILLAGES IN EFFECT -- THROUGH CYCLE

       NO.        MILLS        1        2        3        4        5        6          REVENUE

        1         4.50         *        *        *        *        *                   $

     TOTAL                   4.50     4.50     4.50     4.50     4.50     0.0          $

F    TRANSFERS FROM GENERAL FUND, CYCLE  1                                         F $

     SURPLUS CARRIED FROM CYCLE  0                                                   $

     TOTAL FUND BEFORE CYCLE  1 PAYMENTS                                             $

     TOTAL G.O. BOND PAYMENTS MADE IN CYCLE  1                                       $

     SURPLUS CARRIED TO CYCLE  2 + 6.00 PERCENT INTEREST ______________________________

     TOTAL DEBT RETIREMENT FUNDS AVAILABLE FOR CYCLE  2 ______________________________
               (BEFORE TRANSFERS FROM GENERAL FUND, IF ANY)

G 3. REVENUE BONDS IN EFFECT --

                  PRINCIPAL          INTEREST   CYCLES               FEES
        NUM       OUTSTANDING          RATE     TO RUN             COLLECTED            PRIN

         9     $  3450000.             6.50       24         $       36800.        $   14
       103     $    60000.             6.00       10         $   H    9600.        $

     TOTAL     $  3510000.
```

```
IANS, JURISDICTION  1 --                              CYCLE  1,  PAGE  84
                                                      TEAM   1

IF CAPITAL FUND OF JURISDICTION 1

  UNDERPAYMENT                     PAYMENT  DUE  IN  CYCLE  2
   IN CYCLE  1               PRINCIPAL         INTEREST              TOTAL

   $          0.          $    345600.    $     51840.    $     397440.
   $          0.          $    272326.    $     57189.    $     329515.
   $          0.          $     92578.    $     51844.    $     144422.
   $          0.          $    145351.    $     87937.    $     233288.
   $          0.          $    149625.    $    149625.    $     299250.
   $          0.          $    150340.    $    172891.    $     323231.
   $          0.          $    112500.    $     54000.    $     166500.
   $          0.          $     50000.    $     67500.    $     117500.

                                                      D  $    2011142.


LE

     5         6        REVENUFS -- CYCLE  1     REVENUES -- CYCLF  2

     *                          $  1985846.                $  2039531.

   4.50      0.0                $  1985846.                $  2039531.

                             F  $   107000.

                                $        0.

                                $  2092846.

                                $  2030039.

ST ------------------------------------------------------> $     66575.
2  ------------------------------------------------------> $   2106106. D
Y)


     FEES                          PAYMENT  DUE  IN  CYCLE  2
   COLLECTED                 PRINCIPAL         INTEREST              TOTAL

 $    368000.             $    143750.    $    224250.    $     368000.
 $   H  9600.             $      6000.    $      3600.    $  H    9600.

                                                          $     377600.
```

A These must b
referendum.

B This number
issue in p

C Although proj
years, the loan
repaid over
years in so
cycle.

D Compare these
additional de
be needed to
this case, su
and need n
present time.

E Special debt
approved by
only to paying
never to ope

F These may be
desired.

```
1,  PAGE  84
1

TOTAL

7440.
9515.
4422.
3288.
9250.
3231.
6500.
7500.

1142.

- CYCLE  2

39531.

39531.

66575.
06126.

TOTAL

3000.
9600.

7600.
```

D

A These must be approved by voters in a referendum.

B This number has been assigned to each bond issue in preceding cycles.

C Although projects are completed in a very few years, the bonds which support them are usually repaid over a longer time, as long as 25-30 years in some cases — including the current cycle.

D Compare these two values to see whether additional debt retirement millage funds will be needed to meet the City's obligations. In this case, sufficient funds are on hand and need not be supplemented at the present time.

E Special debt retirement millage, which must be approved by the voters, may be applied only to paying off general obligation bonds, never to operating expenses.

F These may be made on an annual basis are desired.

● (This table continued on page 8-14)

Important Note:
When a bond referendum is sent to the voters (to authorize the selling of bonds), a special debt retirement millage should be requested also, so that the investors may be repaid out of tax revenues. In the present case, the City Council received approval of one bond sale (see page 8-1) but did not obtain any debt retirement millage to repay investors.

● (This table continued from page 8-13)

4. CREDIT RATING OF JURISDICTION 1 IS 1 **I**

A. $ LIMIT ON NEXT G. O. BOND SOUGHT $24169728.

B. INTEREST RATE ON NEXT G. O. BOND **J** 4.5

C. INTEREST RATE ON NEXT REVENUE BOND 6.0 **J**

G These need not be approved by the voters since they are paid off from fees earned by the facilities constructed.

H Credit rating may go down if all bond payments are not made on time. Moreover, the interest rates you will have to pay, in order to sell new bonds, will go up.

I Fees collected will always equal payment due, hence no worry or bother to the Politicians!

J Since general obligation bonds are backed by the taxing power of the community, the interest rate is lower than on higher risk revenue bonds.

```
METRO-APEX --  9/ 9/71                          -- POLITICIANS, JURISDICTION  1 --
 PRINCIPLES OF AIR POLLUTION CONTROL

                           PLANNERS RECOMMEND THE FOLLOWING CAPITAL PROJECTS BE STA
                          (IN ADDITION TO THOSE STARRED ABOVE WHICH WILL BE AUTOMAT

PROJ  LOCATED    CPI   ACRES   BUDGET                    TITLE
NUMB    IN     IMPACT  USED   CATEGORY
------------------------------------------------------------------------------------

   1  AA   4     AA            STREETS    RESURFACING OF NEIGHBORHOOD STREETS
   1  AA   4     AA            STREETS    RESURFACING OF NEIGHBORHOOD STREETS
   1  AA   4     AA            STREETS    RESURFACING OF NEIGHBORHOOD STREETS
   2  AA   3     AA            STREETS    RESURFACING OF SECONDARY STREETS
   2  AA   4     AA            STREETS    RESURFACING OF SECONDARY STREETS
   3  WARD1      WARD          STREETS    REPAIR, RESURFACE PRIMARY STREETS
   4  AA   8     AA            STREETS    WIDEN SECONDARY STREET
  12  WARD1      WARD          STREETS    NEW WARD-WIDE STREET LIGHTING SYSTEM
  20  AA   8     AA      3.5   STREETS    CONSTRUCT LARGE PARKING STRUCTURE
  36  AA   8     AA            SEWERS     EXPAND SANITARY SEWER CAPACITY
  38  WARD2      WARD          SEWERS     EXPAND SANITARY INTERCEPTOR SYSTEM
  51  AA   8     AA            WATER      EXPAND AREA WATER MAINS
  61  AA   8     AA      0.5   PARK,REC   DEVELOP AND EQUIP VEST-POCKET PARK
  65  AA   3     WARD    1.5   PARK,REC   CONSTRUCT PUBLIC SWIMMING POOL
  66  AA   13    WARD    5.0   PARK,REC   DEVELOP BALL FIELD
  69  AA   4     AA            PARK,REC   REPLACE PLAYGROUND EQUIPMENT
  71  AA   3     WARD          PARK,REC   REPLACE PICNIC FACILITIES

TOTAL COST OF RECOMMENDATIONS (NOT INCLUDING LAND)A---------------------------------

                           PLANNERS RECOMMEND THE FOLLOWING SPECIAL PROGRAMS BE STA
                          (IN ADDITION TO THOSE STARRED ABOVE WHICH WILL BE AUTOMAT

                          REQUIRED
PROG       LOCATED         CAPITAL
NUM.         IN            PROJECT                     TITLE
------------------------------------------------------------------------------------

 11        JUR 1             89          JOB-CORPS CENTER FOR SCHOOL DROP-OUTS

TOTAL COST OF RECOMMENDATIONS (NOT INCLUDING LAND) ---------------------------------
```

A Land costs are deducted from Capital budget after a project has been started.

```
JURISDICTION  1 --                                   CYCLE  1,  PAGE  85
                                                     TEAM   1

CAPITAL PROJECTS BE STARTED IN CYCLE  2
E WHICH WILL BE AUTOMATICALLY CONTINUED)

ITLE                                     FUNDED      CYCLES          TOTAL
                                         BY BOND     TO RUN           COST
--------------------------------------------------------------------------

EIGHBORHOOD STREETS                                  1          $    10000.
IGHBORHOOD STREETS                                   1          $    10000.
IGHBORHOOD STREETS                                   1          $     6000.
ECONDARY STREETS                                     1          $    75000.
ECONDARY STREETS                                     1          $    75000.
 PRIMARY STREETS                                     1          $   125000.
TREET                                                1          $   120000.
EET LIGHTING SYSTEM                                  1          $   200000.
ARKING STRUCTURE                                     3     *    $  1000000.
EWER CAPACITY                                        1          $   300000.
NTERCEPTOR SYSTEM                                    2     *    $   400000.
 MAINS                                               3     *    $   275000.
 VEST-POCKET PARK                                    1          $    20000.
SWIMMING POOL                                        1          $   200000.
D                                                    1          $    25000.
D EQUIPMENT                                          1          $     8000.
CILITIES                                             1          $    25000.

                                                                $  2874000.

SPECIAL PROGRAMS BE STARTED IN CYCLE  2
E WHICH WILL BE AUTOMATICALLY CONTINUED)

                                         FUNDED      CYCLES          ANNUAL
ITLE                                     BY MILL     TO RUN            COST
--------------------------------------------------------------------------

FOR SCHOOL DROP-OUTS                                  5 *       $    50000.

                                                                $    50000.
```

These are recommendations only - see below.

Important Not
on this sheet a
the Planners;
part, in total
solely upon th
listed recommen
only when the
on their own
plan a projec
funded under
recommendatio
a new duplica
or jurisdiction

m Capital Budget
tarted.

```
PAGE   85

>

     TOTAL
      COST
----------

$    10000.
$    10000.
$     6000.
$    75000.
$    75000.
$   125000.
$   120000.
$   200000.
$  1000000.
$   300000.
$   400000.
$   275000.
$    20000.
$   200000.
$    25000.
$     8000.
$    25000.

$  2874000.




     ANNUAL
       COST
-----------

$    50000.

$    50000.
```

Important Note: The projects and programs on this sheet are recorded recommendations by the Planners; they may be implemented in part, in total, or not at all depending solely upon the Politicians decision. These listed recommendations may be put into effect only when the Politicians have entered them on their own worksheets. If by chance or plan a project listed here has already been funded under the Capital Budget, the recommendation here is assumed to be for a new duplicate project in the same area or jurisdiction.